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Industrial FINISHING

W. H. ROHR, Editor P. C. BARDIN, Associate Editor

Contents

APRIL, 1948
Vol. XXIV, No. 6

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...rlished monthly to finishing ... and paint shop foremen, ...duction superintendents, ...ists, purchasing agents and ...ary executives of metal-...ing, woodworking and mis-...ellaneous industrial plants ...re production cleaning and ...hing are major operations in ...ts and products manufacture.

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Random Comment on the Industrial Scene..... 6
Painting Diversified Metal Products..... 42
Finishing Wringer Components for Washing Machines..... 64
A Finishing Process—Coating With Flock..... 79
Finishes for Furniture..... 88
Letters from Readers..... 100
Questions & Answers..... 106
Materials; Supplies; Equipment..... 112
Booklets; Circulars; Catalogs..... 124
Editorial..... 128
"Classified Advertising" Section..... 141
Advertisers Index..... 144

Dr. Mattiello Of Hilo Honored..... 52
Finish Trouble Traced to Infra-red Oven..... 54
Safety With Solvents..... 54
Ventilation for Small Solvent Users..... 56
Glenn L. Martin Co. Produces Vinyl Resins..... 61
A.I. Pruett Becomes G.M. of Thresher Paint & Varnish Co. 61
Monsanto Appoints Patrick to Aircraft Coating Sales..... 74
Goldsmith Advanced by DuPont..... 74
Jones-Dabney Adds Two Representatives..... 74
Product Design Firm Expands Facilities..... 78
Smith-Davis Adds Two Men to Organization..... 78
DuPont Licenses Making of Metalli-Chrome Lacquer..... 78
More Appointed Sales Mgr. of Optimus Detergents..... 78
Napko Paint & Varnish Works Completes New Laboratory..... 84
Allied Finishing Appoints Two Men..... 104
Baltimore Paint Fire Exaggerated..... 104
Finishing School for Finishers..... 110
Lupomatic Adds to Staff..... 110
Materials Handling Service..... 123
Capalbo Joins Interchemical..... 130
Pyrene Co. Recalls 500,000 Extinguishers..... 132
Hinig Promoted by Sherwin-Williams..... 132
J. W. Marx, Chief Engr. for Newcomb-Detroit..... 134
Modernization Caravan to Tour Country..... 134
Geo. B. Bayles Becomes Secy. Hercules Powder Co..... 141
Pecora Paint Co. Elects Officers..... 141
New Decal Book Free..... 141
Production Planning Brochure Free..... 141

24 TWENTY-FOURTH YEAR OF PUBLICATION

Tell the Boss. More than 7,100 Koppers' employees from the nearly 50 communities in which the company has plants accepted the invitations to "tell the boss" what management-employee policies they want stressed.

Sixty-two percent of the voting employees ranked a steady job, or stability, in the first five. Thirty-six percent ranked it Number 1. Fifty-three percent ranked 'pay rate' among the five most important subjects, but only seven percent signified their belief that it ranked above all other considerations. Forty-two percent placed "a chance to get ahead" in the first five and 7% thought it most important of all.

Forty percent placed their desire for "a square boss" among the high five in importance. Only five percent made it their first choice.

Thirty-five percent ranked "working on the job you prefer" in the first five. Fifteen percent thought it of first importance.

Other subjects which employees listed much farther down the line in importance to them included "friendly working companions", "medical and health facilities", "vacations and holidays", etc.

* * *

Plant Open House. The growing recognition of the plant open house as an industrial and public relations tool is being currently emphasized by "Open House in Industry", a new publication of the National Metal Trades Association, 122 S. Michigan Ave., Chicago, Ill. It is a 32-page study of current Open House practices, and a sound analysis of the experience of varying size throughout the United States.

During and since the war years, industry became increasingly aware of the necessity for good relations within the community, and particularly for good relations with friends and relatives of plant employees, a group of considerable size. A typical plant employing some 2000 employees, for example, will find about 20,000 to 30,000 people in the nearby community who are relatives, close neighbors or good friends of the employees. The goodwill potential of this large group of people is obvious.

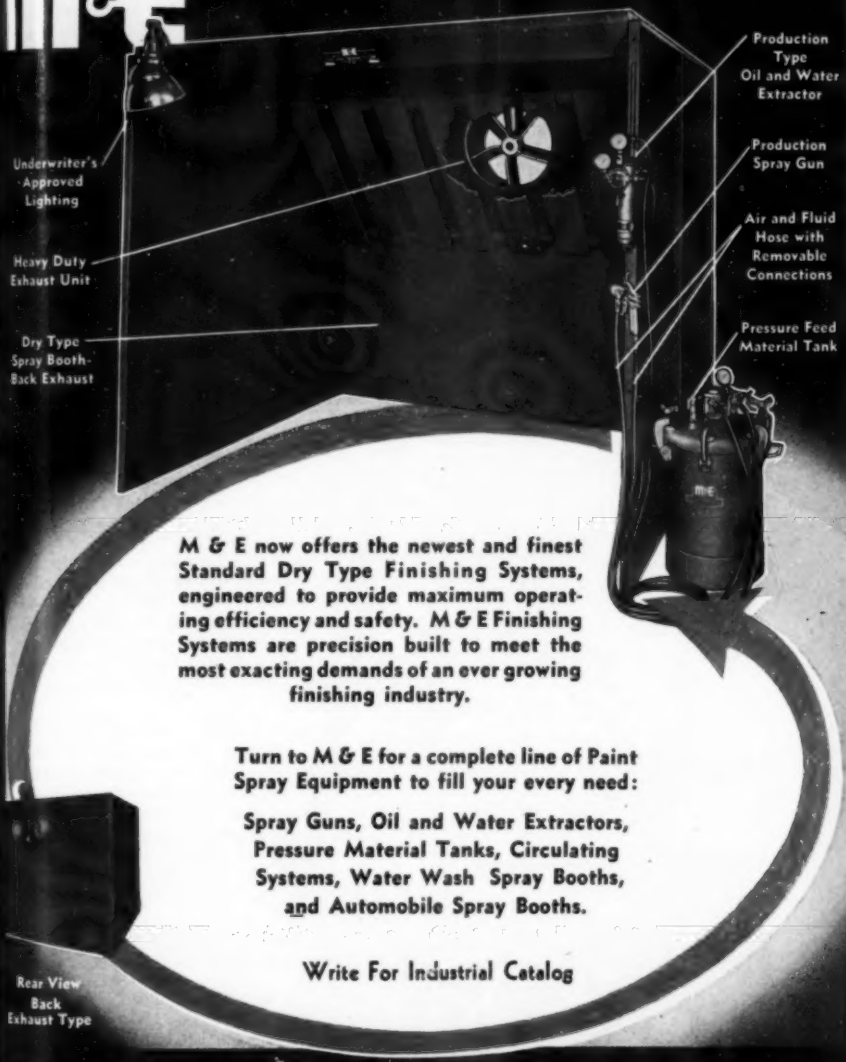
Open Houses originated through employee requests that members of their family be permitted to visit the plant to see what their "menfolks" were doing. Organized tours were developed to keep these visits orderly and safe, with a minimum of hazard and disturbance to plant operations, and a maximum of general community good will.

* * *

Building Contracts. Contracts for construction in the 37 states east of the Rocky Mountains during the first two months of this year topped the dollar total of awards for the corresponding months of last year by 28%, according to F. W. Dodge Corp., a fact-finding organization for the building industry. *(Continued page 8)*

M&E

STANDARD SPRAY FINISHING SYSTEMS


Underwriter's Approved Lighting
Heavy Duty Exhaust Unit
Dry Type Spray Booth-Back Exhaust
Production Type Oil and Water Extractor
Production Spray Gun
Air and Fluid Hose with Removable Connections
Pressure Feed Material Tank
Rear View Back Exhaust Type

M & E now offers the newest and finest Standard Dry Type Finishing Systems, engineered to provide maximum operating efficiency and safety. M & E Finishing Systems are precision built to meet the most exacting demands of an ever growing finishing industry.

Turn to M & E for a complete line of Paint Spray Equipment to fill your every need:

Spray Guns, Oil and Water Extractors, Pressure Material Tanks, Circulating Systems, Water Wash Spray Booths, and Automobile Spray Booths.

Write For Industrial Catalog

M&E

MANUFACTURING COMPANY

INDIANAPOLIS 5, INDIANA

COMPLETE
SPRAY BOOTH
ENGINEERED
MAINTENANCE

Whether you have wet spray booths or dry . . . DU BOIS can save you long hours of maintenance labor and assure you of peak performance and top production. DU BOIS ENGINEERED SERVICE gives the closest approach to perfection in the operation and maintenance of spray booths.

FILMITE PIGMENTED OR CLEAR

A protective coating that prevents paint overspray from sticking to dry areas of paint spray booths. Simply spray or brush on. For clean-up, peel off or wash off

KLARIFIANT

Two action water wash compound for spray booth water curtains.
Eliminates:
1. Plugged nozzles.
2. Water breaks.
3. Clogged lines and pumps.
4. Sludge in reservoir
5. Loss of pressure

FERRO-TERJ

For periodic cleaning of wet spray booths. Cuts deposits from tank, w'orfall sheet, pump lines and nozzles, quickly, cleanly, safely for periodic purging.

Let DU BOIS take spray booth "headaches" from you. Hundreds of plants have eliminated their booth problems with DU BOIS. Convince yourself by writing for complete information.

Address: Industrial Division

The Du Bois Company
1120 WEST FRONT STREET
CINCINNATI 3, OHIO

REPRESENTATIVES EVERYWHERE
WAREHOUSES IN PRINCIPAL CITIES

February's awards by dollar volume were 11% greater than January's and 54% greater than those of February of last year.

Percentagewise, the gains during the first two months of this year compared with last were greatest in heavy engineering awards, which were up 54%. Nonresidential awards showed a 49% gain and residential awards were up 1%. More than a third of all contracts awarded during the first two months were for projects classified as publicly owned.

The gains in contracts awarded during the first two months were most pronounced in the reporting districts comprised of western Missouri, Kansas, Nebraska, Oklahoma; eastern Missouri, southern Illinois, western Tennessee and Arkansas; upstate New York; Minnesota, North and South Dakota; southern Michigan; the Middle Atlantic states; and western Pennsylvania and West Virginia.

* * *

Tool Handles of Magnesium. Lightness, strength and durability are the outstanding qualities which magnesium contributes to the handles of five models of pruning tools manufactured by The Clyde Cutlery Co., Clyde, Ohio.

Magnesium was adopted for the handles after a severe testing program proved that its strength and stiffness resisted the breakage so often encountered with wooden handles. Now, after several months of in-service testing, no instances of breakage have been reported. Absence of splintering is another important advantage of magnesium handles for pruning tools.

* * *

Two "Trailers" make a "Box Car." Going to work for the Illinois Central R. R., on the Chicago-Memphis run, are 12 of the new aluminum "Trailer-

(Continued on page 134)

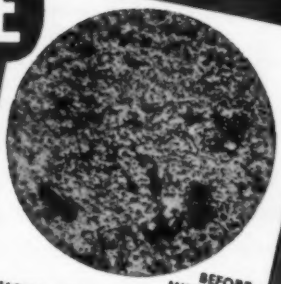
MINIT KOTE

CLEANS..NEUTRALIZES ..PHOSPHATIZES IN "60" SECONDS

- No Rinse Required
- Adaptable To All Washers
- Minimizes Maintenance
- Saves Time
- Saves Space

PRODUCES BETTER CLEANING—STRONGER PAINT BOND

Don't gamble paint performance over a metal surface that has been only cleaned. Follow the lead of other wise manufacturers (toys to automotive truck cabs) Phosphatize the surface with MINIT-KOTE, a new original product that cleans and provides a quality paint bond in one operation at a minimum cost. Write us your cleaning problems and ask for a KLEM Service Engineer to help you with the solution—No obligation.

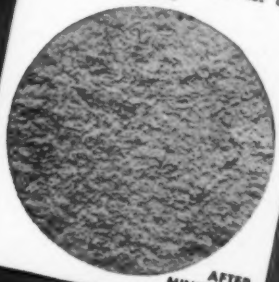


BEFORE MINIT-KOTE

PHOTOMICROGRAPHS PROVE VALUE OF MINIT-KOTE

Photographs show a dirty, hot-rolled steel surface before and after a one minute wash with MINIT-KOTE at 165°F in a power washer 1½% by volume concentration.

Neither paint nor primer will adhere to a dirty, oily or rusty surface. Thorough cleaning is not sufficient for a satisfactory job. MINIT-KOTE cleans, removes light rust and forms an adherent phosphate coating on the cleaned surface in one economical operation. Write for descriptive literature.



AFTER MINIT-KOTE

KLEM Chemicals Inc.

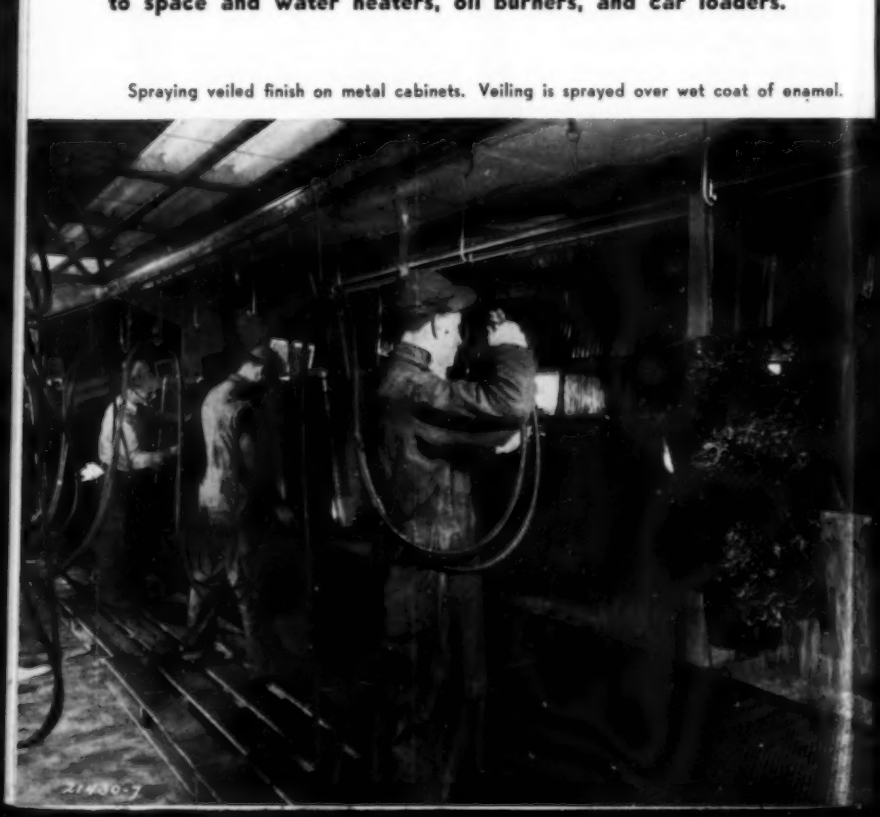
OFFICES IN PRINCIPAL CITIES

14401 LANSON • DEARBORN, MICHIGAN

Painting Diversified

Superintendent of Paint Department at Evans Products Co., Plymouth, Michigan, explains the surface treatment before painting and the technique of applying different finishes to space and water heaters, oil burners, and car loaders.

Spraying veiled finish on metal cabinets. Veiling is sprayed over wet coat of enamel.



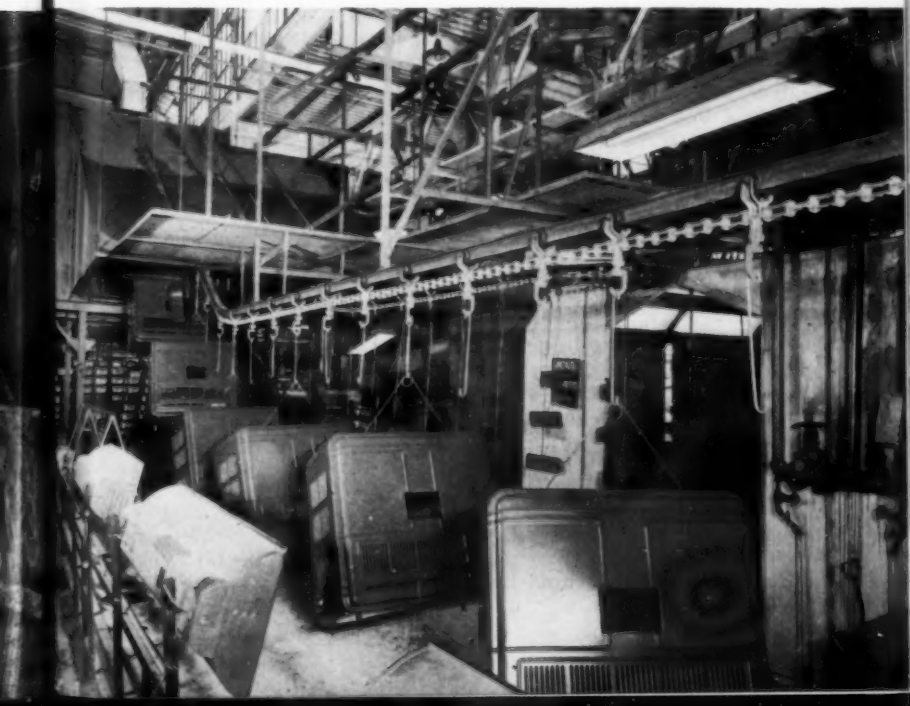
Metal Products

By K. E. WILLIAMS

SEVERAL factors must be considered when you are about to decide which method to use for preparing metal surfaces to receive a durable or decorative paint coating. The type of metal, shape and size of product—and the kind of oil, grease or drawing compound to be removed from the metal—these are the major factors that will influence a wise decision.

For instance, on metal cabinets for our line of oil-burning home

Metal cabinets coming down from the elevated bake oven to pass the inspection station.



Heater cabinets leaving dry-off oven (in background at right) after passing through the washer. They will cool while traveling to the spray booth in middle background.

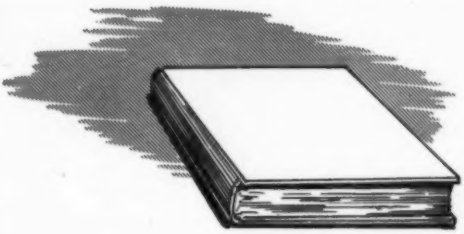
heaters, the pigmented drawing compound used is soluble in mineral spirits. The surfaces of bus and space heater parts have an oil which readily comes off when washed with metal cleaning compound.

Mineral Spirits "Flow Wash" Used for Heater Cabinets

In order to facilitate the cleaning of heater cabinets, we designed and built a multiple spray setup that sprays mineral spirits over the surfaces to be cleaned. This setup is installed just ahead of the entrance to our regular washer which uses a metal cleaning solution. Under the low exit end of the mineral-spirits washer there is a metal floor grating through which used mineral spirits drain into a pit, and into a settling tank. The salvaged liquid is pumped back through the sprays and to the hand brushes with which heater parts are cleaned later.

An operator removes a heater cabinet shell from the conveyor and places it in the mineral-spirits washer. As it slides along the sloping bed by gravity to the exit end, its entire surface is completely drenched and forcibly washed with mineral spirits to remove any excess drawing compound and soften the remaining film. Another operator, using a brush to which a hose carries a constant stream of mineral spirits, removes the cabinet shell from the spray washer and brushes its entire surface. This operator also works over the metal floor grille through which mineral spirits flow into the tank below.

(Continued on page 46)



Some surfaces fool you!

TAKE the surface above, for example. Wouldn't you think a dime would fit easily into that white area without overlapping? Try it!

IT'S the same way with metal surfaces that are to receive electro-deposits or organic finish. They can sometimes fool you too! They LOOK clean and ready for finishing but oft-times when finish is applied, poor grippage . . . uneven coverage result.

BUT we guarantee you'll not be fooled by Oakite-cleaned surfaces, because Oakite cleaning compounds are specially designed to remove heavy grease, oil and ordinary shop-dirt from ferrous and non-ferrous metals. Specialized Oakite cleaning puts surfaces in precise condition to receive tenacious, long-lasting electro-deposits or organic finishes.

OAKITE in-plant service, too, is something you can rely upon. We want you to make full use of it whenever a troublesome cleaning-before-finishing problem arises . . . whenever you've a need to pare production costs . . . whenever you want to streamline your cleaning cycle. Simply drop us a line or call your local Oakite Technical Service Representative. Remember, there is no obligation.

OAKITE PRODUCTS, INC., 32F Thames St., NEW YORK 6, N. Y

Technical Representatives in Principal Cities of U. S. & Canada

OAKITE

REG. U. S. PAT. OFF.

MATERIALS
METHODS
SERVICE

Specialized Industrial Cleaning

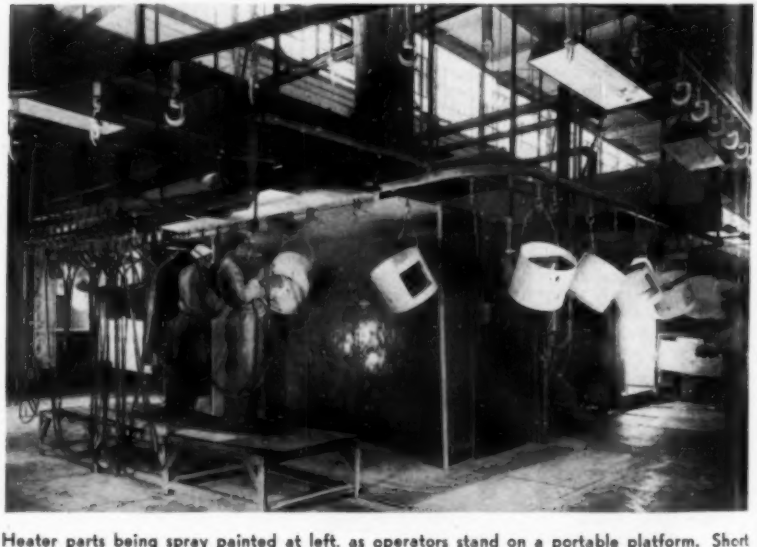
After being brushed with mineral spirits the cabinets are hung to an overhead monorail conveyor, moving at a speed of 9-ft. per minute. This conveyor carries them into and through the regular metal cleaning washer where a heated solution of 2% phosphoric acid emulsion is sprayed through spray heads mounted on four sides, at 20-lbs. pressure. At the exit end of the regular washer, cabinets are dried in an infrared tunnel for two minutes at 350° F.

Various Enamel Finishes Are Applied on Different Products

Heater cabinets become cool as they travel toward the 3-man, water-curtain spray booth. Here the first operator sprays on a coat of synthetic primer. This is followed by a top coat of synthetic enamel—after one minute of flash (drying) time. The top coat flashes about three minutes before cabinets enter the elevated, indirect gas-fired oven where the finish is baked for 19 minutes at 325° F.

Inside surfaces of all space heaters are coated with aluminum to reflect the heat and thus prevent discoloration of the outside enamel. This coat of aluminum is also applied in the 3-man spray booth.

Cabinets that take a decorative veiled finish receive a prime coat and a brown enamel top coat, the latter serving as a ground color for the decorative veiling. In the 3-man



Heater parts being spray painted at left, as operators stand on a portable platform. Short hooks are used to suspend parts from the conveyor to make room for dipped pieces to be hung underneath by operator working at dip tanks at the extreme right.

EGYPTIAN

Baking HAMMERED FINISH

This panel is an unretouched photo of Egyptian Baking Hammered finish on aluminum.

Here is a hard, mar-resistant finish for spray application on metal. Gives a hammered effect, the pattern size of which may be varied as required.

The Egyptian application method permits separate finishing of panel sections which assemble with excellent match in design, color and gloss. Chemical and stain-resistant surface is easy to clean.

We invite your inquiry. Samples available. Demonstrations arranged.

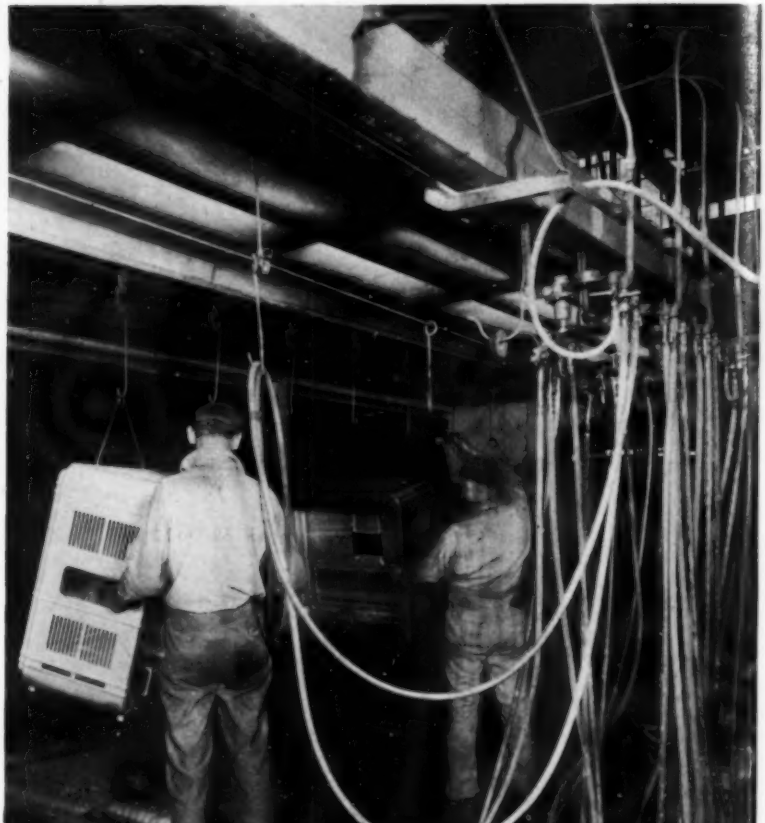
THE EGYPTIAN LACQUER MANUFACTURING COMPANY

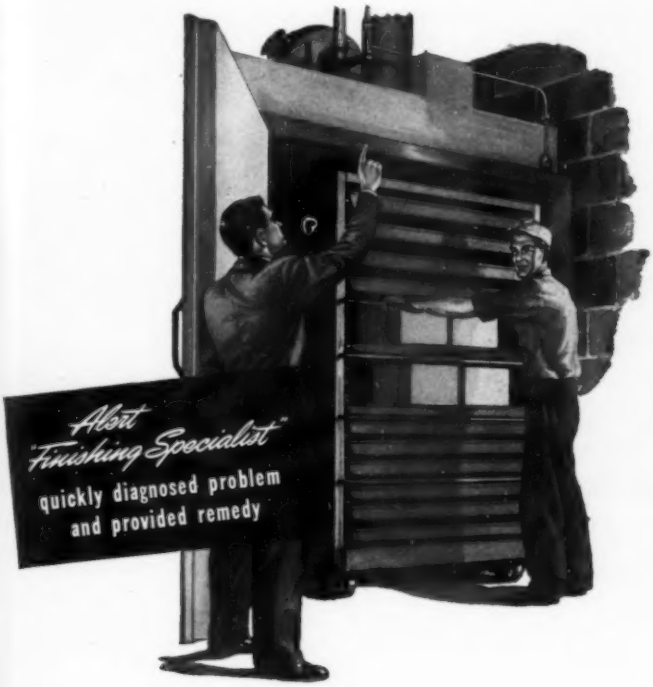
SPECIALIZED PRODUCTION FINISHES

P. O. BOX 444, NEWARK, N. J.

spray booth, a fourth operator is added who sprays a latex material over the wet enamel. For a fairly large pattern of decorative veiling, an atomizing pressure of 30-lbs. is used, with 5-lbs. pressure on the material tank. If a finer pattern of decorative veiling is desired, the atomizing pressure is increased to 50-lbs., and the quantity of mat-

Spray painting heater cabinets. Supply tanks are in back of booth, with pipes passing up and over top. Small, portable pressure tank at lower right is for special finish. Tanks in back of booth allow more working space in front.





Alertness on the part of a Lowe Brothers "Finishing Specialist"—backed by his thorough knowledge of finishing methods—was recently responsible for the speedy solution of a manufacturer's finishing problem. This manufacturer was getting poor results in his wrinkle finish. Over a three-month period, rejects averaged 50%!

At first inspection of the rejected parts, the Lowe Brothers "Finishing Specialist" diagnosed the trouble as "gassing." He immediately conferred with the oven people and proper oven ventilation was provided. By making this simple adjustment the situation was quickly corrected and rejections were eliminated.

The utter simplicity of this particular experience helps illustrate an all-important fact. A Lowe Brothers "Finishing Specialist" tackles with equal alertness and willingness *any* problem, grave or simple, that affects finishing results. Well-rounded experience enables him to spot trouble quickly and suggest the most practical remedy.

So—big problem, small problem, or no problem at all—it's just plain wise to have a Lowe Brothers "Finishing Specialist" check *your* finishing methods for possible improvement. It's a *free* service, and you need not be a Lowe Brothers customer. Write today to the Lowe Brothers Company, Dayton 2, Ohio.

Lowe Brothers
FINISHES FOR INDUSTRY

Automobile loaders are hung from overhead conveyor and moved through the flow coater

ried fed into the gun is reduced. Veil-decorated cabinets are baked in the same oven with the same heat and length of time as cabinets finished in solid colors.

Bus Heater Parts Finished and Baked

Some parts are dip coated with black synthetic enamel; others receive a spray coat of either black or some lighter colored synthetic enamel. After a flashing period of three minutes they pass through an infra-red tunnel where the black enamel finishes are baked four minutes at 400° F.; lighter colors are baked four minutes at 375° F.

In order to relieve congestion and provide more working space the material pressure tanks are located at the rear of the water-curtain spray booths. Finishing material is piped up and over the top of the front of the booth. For special finishes a small portable pressure tank is sometimes used at the front of the spray booth.

Automobile Loaders Are Flow Coated

Another product in our line is the automobile loader—a heavy steel frame designed to support an automobile in an elevated position in a railroad box car. Two of these frames are installed near the ends of a freight car and lowered to a floor position. An automobile is rolled onto each of the loaders. Then they are elevated so that another car may be run under each of the two elevated cars, this making it possible to load four automobiles in each freight car. When not in use for carrying automobiles,

RANDOLPH

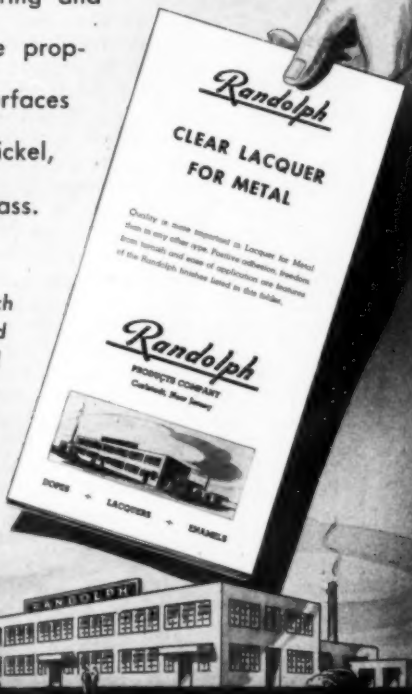
CLEAR LACQUERS FOR METAL

Give full protection and improve appearance

For many years the Randolph organization has specialized in producing fine clear lacquers that will give maximum resistance to moisture, grease, wear, heat, marring and provide positive adhesive properties for difficult metal surfaces such as copper, zinc, nickel, cadmium, aluminum and brass.

•

A copy of our new folder which contains helpful, technical and factual information on all Randolph Clear Lacquers for metal and those for special requirements will be sent on request.



Randolph
PRODUCTS COMPANY
Carlstadt, New Jersey

DOPES · LACQUERS · ENAMELS

these loaders fold up out of the way in the roof of the railway car.

No surface preparation is required for our automobile loaders except to blow off any foreign matter, especially any that may be lodged in "pockets" and close places. Each assembled loader, about 10x 18-ft., is suspended by a heavy chain from an overhead monorail conveyor which carries it through our special flow coater. The actual flow coater is 6-ft. long and 12-ft. high. Attached to the exit end is a drying chamber 16-ft. long by 12-ft. high. Warm air in the drying chamber is circulated to evaporate the volatile solvents in the asphalt-base coating. This asphalt-base material is flowed on at a viscosity of 16-seconds at 75° F. (Baume 60 light liquids), with a pump pressure of 20-lbs.

Inside the flow coater and just above the floor level, there is a power conveyor on which small parts are placed for coating. A single supply pipe extends down the two side walls from the top of the flow coater, with two pipes across the bottom—one above the horizontal conveyor, and one directly below it. These pipes are fitted with nozzles pointing at different angles. Some are long, others are short; some produce various width fan-shaped sprays, while others make a jet stream, so that in one trip through the machine every part of the product is completely drenched with paint; even the "pockets," channels and other close places are coated. The two vertical supply pipes are partly surrounded by two curved metal baffles which aid in the coating of loaders and help to keep the walls of the flow coater free of asphalt material.

How Flow Coater Is Cleaned

Two flow nozzles, mounted on each side of the conveyor rail at the top of the machine, are used to flow solvent to clean the conveyor chain. An elaborate system of underground tanks and valves is used to control the asphalt base material and the various solvents used.

Weather conditions and temperature determine which type of solvent will be used, for it must be kept in mind that the loaders must be dry enough to handle soon after they leave the recirculating chamber. This black coating never dries to a hard surface, but remains in a slightly mastic state which is highly desirable for this type of equipment.

At the close of each shift, solvent is pumped through the system to clean the pipes, nozzles, baffle plates and both conveyors. This solvent drains back into a separate tank, to be combined later with asphalt material for flow coating. The flow coater is equipped with an automatic carbon dioxide (CO^2) system for fire protection.

Dr. Mattiello of Hilo, Honored

Dr. J. J. Mattiello, Vice-President and Technical Director of the Hilo Varnish Corp., was unanimously elected a fellow of the New York Academy of Sciences, at the recent Annual Meeting, in recognition of his achievement to science.

Election to Fellowship is a distinguished honor, conferred on a limited number of active members, who, in the estimation of the Council, have done outstanding work toward the advancement of science.

Mattiello was also recently chosen as one of the ten ablest chemists or chemical engineers in the field of paint, varnish and plastics, now working in the United States. This honor was conferred through a poll held by the "Chemical Bulletin", publication of the Chicago Section, American Chemical Society.

YOU'RE ALWAYS IN FIRST PLACE ....WHEN YOU FINISH WITH UNITED

UNITED LACQUER PRODUCTS have "what it takes" to keep production and sales both moving fast. Free flow, rapid drying, and a hard, tough, perfect finish increase the "eye appeal" of your furniture, fixtures and appliances.

UNITED High Speed Lacquers have been tried, tested and proved superior by manufacturers. In gloss, satin or dull finishes they're absolutely uniform in quality and performance. Every standard formulation is time tested for durability.

What's YOUR Problem?

Send requirements to us. We'll find the right finish and pass along a generous working sample to you. No obligation!

"FIRST WITH THE FINISH"

United Lacquer Mfg. Corp.

General Office, Laboratory, Factory: LINDEN 3, NEW JERSEY
New England Plant: EVERETT, MASSACHUSETTS

LACQUERS
THINNERS
SYNTHETICS
METALLIZED FINISHES
SPECIAL COATINGS

Finish Trouble Traced to Infra-Red Oven

by Elton Sterrett

SOME time ago I was called in to try and determine why a concern was having trouble finishing its product, after a most successful season of highly acceptable work.

The usual checks showed that the finish was up to standard as to ingredients. The spray-gun men were doing their job all right—but the infra-red tunnel was not doing its job, even though the conveyor had been slowed to its slowest speed. No provisions had been made for checking the amount of heat put out by the heat lamps, nor for determining which lamps, if any, had burned out. The baking time was extended only because the finish was no longer coming out baked as hard as formerly. All peep holes in the tunnel were designed to allow observation of the work, but not—except accidentally—to provide a check on the infra-red banks.

When operations were stopped, a personal trip through the tunnel showed that almost 40% of the heat lamps were broken or burned out. Also, a coating of dust and lacquer covered the glass of the bulbs that were still "good". This condition greatly curtailed the amount of heat put out by the individual heat lamps.

With the old bulbs cleaned and all damaged units replaced, a slight change was made in the wiring for each panel of the entire bank, so that an ammeter could be cut in simply by plugging its leads into appropriate sockets. The full-load current demand for each bank was then determined, when it was known that all the bulbs were effective. With this figure recorded it is now a simple matter to check the current demand of the panel or bank at any later date and (by noting the drop in current draft) estimate to within one or two lamps the number of lamps out of service.

Since the lamps near the bottom of the bank were most heavily coated by dust and lacquer, test bulbs were installed along the tunnel at 8-ft. intervals. These bulbs and sockets were so tied in that they could be removed through a sliding panel in the tunnel housing, and the amount of coating could be determined by visual inspection without shutting down the flow of work through the tunnel.

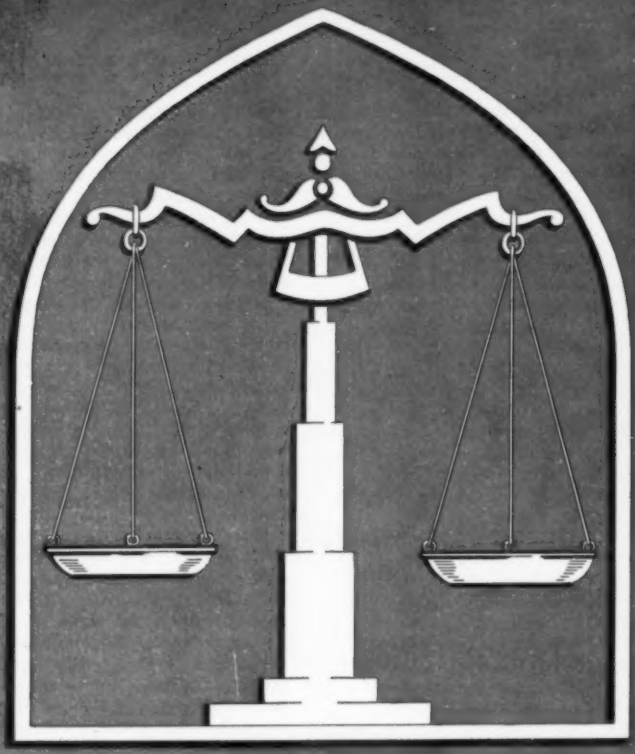
Now, when a unit becomes coated to the point where its heat transmission is seriously affected, the entire tunnel, or at least that part of it indicated by the check unit can be cleaned.

Even after a thorough cleaning, the heat output of each unit never quite reached its original rating, so we devised a system of "rotating" the lamps. Lamps used for the bottom of a bank (where service is most severe) are exchanged with others from the sides or top of the panel. In this way the heat output of any section of the tunnel remains "in balance" and the exact time for any baking specification can be determined with the assurance that rejects will be down to a minimum.

Even an infra-red heat lamp is a delicate piece of "machinery" and, as such, it responds to intelligent care. We can't expect these lamps to last forever, and they will not perform efficiently when coated with dust.

Safety with Solvents

MOST occupational accidents involving solvents occur in the small plant or shop where there is no safety organization to supervise the handling of chemicals. Solvents are liquids commonly used for cleaning, thinning, degreasing, spot removing, etc. Although they are marketed



JONES-DABNEY

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DIVISION OF DEVOE & RAYNOLDS CO., INC.

INDUSTRIAL FINISHES
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Enamels - Stains - Fillers

RESINS & GRINDING LIQUIDS
"Syntex" Alkyds - Special Resins
Varnishes - Grinding Liquids

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under a variety of trade names, the most commonly used solvents consist of benzol, benzine, acetone, carbon tetrachloride, trichlorethylene or perchlorethylene. Careless handling of even small amounts of these materials may lead to fire, illness, or both.

Since it is probably the manager or foreman in the small plant who must play the role of "safety director," it is up to him to read carefully the labels on all drums of chemicals received in the plant, and to be certain that the precautions recommended by the manufacturer are observed. If drums of solvents bear trade names which do not reveal their composition, this information can generally be obtained from the manufacturer or distributor.

Solvents are volatile liquids, that is, they give off vapors readily. With the exception of the chlorinated solvents (such as carbon tetrachloride) the vapors given off are flammable. Moreover, when air containing a large amount of solvent vapor is inhaled, illness is likely to result. If the concentration of solvent vapor in the air breathed is large enough, it is likely to cause unconsciousness and even death if the individual is allowed to remain in the atmosphere long enough.

Lower concentrations of solvent vapor can give rise to headaches, dizziness, stomach upset, and various disturbances of the liver, kidneys, or other organs of the body. In addition, long or repeated contact of the skin with solvents can cause irritation and dermatitis.

Of course, solvents can be, and are, used with complete safety, even in large volume, provided the proper handling methods are employed. This is usually the case in large plants, where continuous solvent processes are carried out with no difficulty. It is not so often recognized, however, that small uses of solvents, such as wiping of lenses, or occasional uses, such as cleaning motor parts, also constitute solvent "operations" which require attention to safety.

For example, there was a recent case of occupational illness which occurred when a laborer was assigned to remove the grease from the gears of a mill prior to its dismantling. Since this was a "one time" job, the degreasing solvent was used in open buckets, with little attention to safety. In another instance, a man was employed to dip small metal parts in a 3-gallon vessel of solvent and then spread them out on a bench to dry. Only small amounts of solvent were involved, but this careless procedure led to a fairly severe case of solvent illness.

The small solvent user can protect his plant and his workers by making sure that every procedure employing solvents, whether for a brief or extended period of time, is arranged so that workers do not inhale solvent vapors. In some instances, this may require the installation of special process equipment; in others proper ventilation will provide the necessary safeguard. Also, operations should be set up so that skin contact with the solvent is avoided. The local industrial hygiene agency can help those who are in doubt as to the safety of their solvent operations.—SAFETY RESEARCH INSTITUTE.

Ventilation for Small Solvent Users

THE OPERATOR or manager of the small plant or shop and the occasional user of solvents frequently need to be reminded that good ventilation is essential whenever and wherever solvents are used. Unless operations such as degreasing, thinning, cleaning, etc., are provided with adequate

(Continued on page 61)

ventilation, workers may inhale sufficient quantities of solvent vapors to cause illness.

For occasional solvent operations, it is best to do the job outdoors on a breezy day, whenever possible. When the work must be done indoors, it should be carried out in an airy room near an open window. If adequate natural ventilation is not available, occasional small solvent jobs may be done safely by protecting workers with canister gas masks. Of course, the mask protects only the worker who wears it, and care must be taken that other workers in the room are not exposed to solvent vapors. For large jobs which are done only at intervals, a portable blower may be the most practical method of providing protection.

Where solvents are used constantly or frequently, it is usually necessary to provide special ventilating equipment. The equipment may be designed to ventilate the entire workroom. In this case, attention should be given to the area immediately around the solvent operation. For example, a man using solvent to wipe machine parts may be inhaling too much vapor, even if the air in the rest of the room is safe.

Often it is best to use equipment which ventilates locally, that is, which removes the solvent vapor at the point it is released, before it spreads through the workroom. Thus, a ventilated booth, an exhaust hood over the workbench, or a work table with ventilator slots around its edge, can protect the operator and also prevent contamination of the air in the rest of the workroom.

Large continuous solvent operations require the use of fully or partly enclosed equipment from which solvent vapor cannot escape. Even the small plant or shop may find such an installation worth while for an important solvent operation.

The operator of a small plant can obtain assistance on ventilating problems from the industrial hygiene service of his local health or labor department.—SAFETY RESEARCH INSTITUTE.

Glenn L. Martin Co. Produces Vinyl Resins

Scheduled to become the third largest producer in the vinyl resins field, the new plant of The Glenn L. Martin Co. Chemicals Division at Painesville, Ohio, has made its first shipment of Marvinol VR-10. Cost of erecting and equipping the new plant will total approximately $6,000,000.

Annual production output was announced as 25,000,000-lbs. of Marvinol VR-10, a new thermoplastic resin which is being marketed as a raw material in the form of a fine, white powder. It has been estimated that approximately 235,000,000-lbs. of vinyl resin will be required by the plastics industry during 1948.

A. I. Pruett Becomes G. M. of Thresher Paint & Varnish Co.

A. I. Pruett has been appointed general manager of The Thresher Paint & Varnish Co., Dayton, Ohio, according to an announcement by E. D. Griffin, vice president in charge of Pittsburgh Plate Glass Company's paint division. Thresher Paint is an affiliate of the Pittsburgh firm.

A. I. Pruett has been appointed general manager of The Thresher Paint & Varnish Co. of Dayton, Ohio.

A native of Pittsburgh, Mr. Pruett for more than 25 years was associated with the Pruett-Schaefer Chemical Co., a Pittsburgh concern. He joined the paint division of Pittsburgh Plate in 1946.

As general manager of the Dayton company, Mr. Pruett succeeds Charles L. Sullivan, Jr., who died recently after more than 23 years as president and general manager of The Thresher Paint & Varnish Co. Mr. Sullivan had been associated with the Dayton operation since 1911.

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BEVERAGE COOLING EQUIPMENT

The cooling equipment of modern soft drink cup dispensing machines is almost constantly covered with moisture. Protect metals subject to rust with R-M X-8940 Aluminum Baking Enamel.

LONG LIFE BRILLIANCE
with One-Coat Coverage

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RINSHID

s gainst rust and corrosion

in enamel... No. X-8940

VERY DURABLE X-8940 was especially formulated by Rinshed-Mason for baking operations in the fabricating of new products. This brilliantly decorative aluminum enamel offers great hiding power with one coat; won't crack or peel; can be dipped or sprayed.

EXCEPTIONAL HUMIDITY RESISTANCE of X-8940 guards metals against destructive effects of rust and corrosion; adds many years to product life. This ability to resist moisture, coupled with its decorative brilliance, makes X-8940 the right answer for baking applications on products such as the following:

Beverage cooling equipment • Bike rims, fishing rods, toys • Dairy equipment • Deep freeze locker equipment • Food processing plant equipment • Garden tools and equipment • Ice plant equipment • Mine equipment • Refrigerating room equipment • Textile mill equipment

There's an R-M aluminum finish for all types of industrial production or maintenance applications. Ask about R-M's X-2411, a fast air-drying highly durable enamel, and tough, X-7007, a fast air-drying, high-heat-resistant aluminum enamel.

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FINISHING *Wringer Components*

Here are two conveyor lines, each taking care of a different kind of finishing setup—one for applying and drying a dip coat of clear lacquer, and the other to spray a coat of white enamel (and bake it) on parts for washing-machine wringers.

LOVELL MFG. CO., Erie, Penna., is a large producer of wringer assemblies for many of the nation's washing machine manufacturers. After the war it faced the problem of increasing its capacity for finishing these assemblies in white enamel, which was previously applied to only about 20% of the units. Clear lacquer had been used as the top coating on practically 80% of the company's production.

Methods Engineer Davison looks into an opening beside the dip tank, in a tunnel built especially for the lacquering conveyor line. As the lacquer-coated parts leave the dipping tank they pass over small steam radiators on floor of the tunnel.

FOR *Washing Machines*

By WALTER RUDOLPH

While finishing its products in baked white enamel was perhaps the major item in this problem, Lovell's also felt the need for increasing the efficiency of its clear lacquering system. Accordingly, the management decided to install two conveyor systems.

Plated Drains Are Buffed and Lacquered

All zinc-plated steel hand-rests or drainboards for wringer assemblies are lacquered, as this is what customers prefer. These pieces come to the lacquer finishing room on hand trucks, after having been buffed on power buffing wheels. They are hung on a 225-ft. overhead chain conveyor which travels about 12½-ft. per minute.

The conveyor enters a 30-ft. lacquering tunnel. Close to the tunnel's entrance the conveyor line dips to submerge the pieces in a tank of clear lacquer. The remaind-

Three of the four buffing stations where muslin buffing wheels are used to produce a clean satin finish on zinc-plated steel parts before they are hung to the conveyor which will carry the parts through the lacquer dipping tunnel and drying oven.

er of the tunnel has small flat steam radiators along its floor line to heat the tunnel and promote the quick release of volatiles from the clear lacquer coating, setting it up prior to baking. Near its exit the tunnel rises at an angle of 45° to reach a higher level where the conveyor makes a right angle turn into an infra-red oven suspended from the ceiling.

The wringer parts travel through a 25-ft. infra-red oven which has 224 infra-red lamps each rated at 375-watts. The baking heat is about 170° F. After leaving the oven the conveyor line doubles back on itself for about 60-ft. to allow a 5-minute cooling period before it reaches the packers. Packers remove the finished pieces, give them a quick inspection and wrap them in heavy kraft paper. They are shipped, along with minor assembly items, 50 to a carton.

Parts That Hold Rolls Are White Enameled

Component parts that hold and enclose the ends of wringer rolls and bearings are the "meat" for Lovell's other conveyor installation in another section of the plant. These parts are known as standards and collectors, and are fabricated from cold-rolled strip steel. From the presses they proceed to the zinc-plating department and then to the stock room on hand trucks.

Many varieties in these parts, as to shape and dimensions, are necessary, according to customer styling. Essentially, however, the overall size of each complete assembly does not differ enough to require any deviation from the finishing procedure that follows.

Cleaning and Bonderizing Precede Paint Spraying

Parts proceed from stock according to scheduling which, in turn, is determined by customers' demands. The parts are moved on hand trucks to the cleaning area where they go through six stages of cleaning, rinsing, Bonderizing and chromic acid treatment. Specifically these stages include cleaning in an alkali solution, rinsing, a fixodine bath, Bonderizing (Bonderite 32), a second rinsing, and a hot chromic

Part of the dipping tank equipment for cleaning, rinsing, rust-proofing and surface treating wringer components that are to be spray painted with white enamel.

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acid bath. The tanks holding these solutions are served by an overhead power hoist which can be moved along a monorail. Angle-iron baskets, slightly smaller than the tanks, hold the parts as they are moved through the different stages.

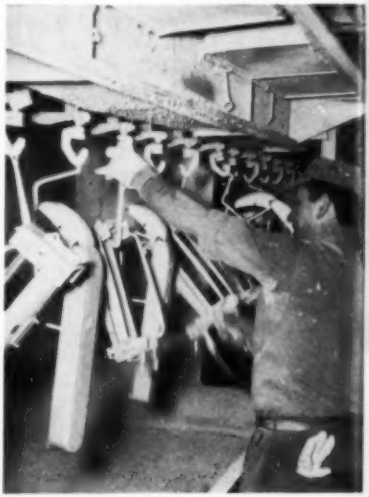
The size of the baskets and tanks, their location, and the use of the electric hoist, all combine to give the metal-cleaning and Bonderizing setup excellent efficiency. By the time metal parts leaving the last tank are hung on the overhead conveyor for painting, they are practically dry. During or immediately after hanging, each part is thoroughly wiped with a tack rag to insure a dust-free surface for painting.

Conveyorized Spray Painting; Then Baking

The conveyor is 580-ft. in length. It moves about 7-ft. a minute and, with parts hung every 2-ft., it delivers 210 units an hour. It has swivel hooks so that parts can be rotated while being sprayed.

A number of different size hangers have been designed and made to attach various parts and products to the conveyor. Each one consists of a 1-in. ring (to fit the swivel hook) and sections of $\frac{3}{8}$-in. rod welded to the ring and into T's and U's that serve to hold individual standards and collectors (really sub-assemblies rather than single parts, as heretofore designated). From the hang-on station, the conveyor line moves a short distance and enters a dry-off oven wherein the parts are preheated to remove any trace of moisture that may be still clinging to the surfaces.

The conveyor line moves on through a cooling area and then through a 12-ft. water wash spray booth, where three operators make individual passes at the parts which are slowly rotated as they travel through the booth. Fresh air enters the booth above and slightly



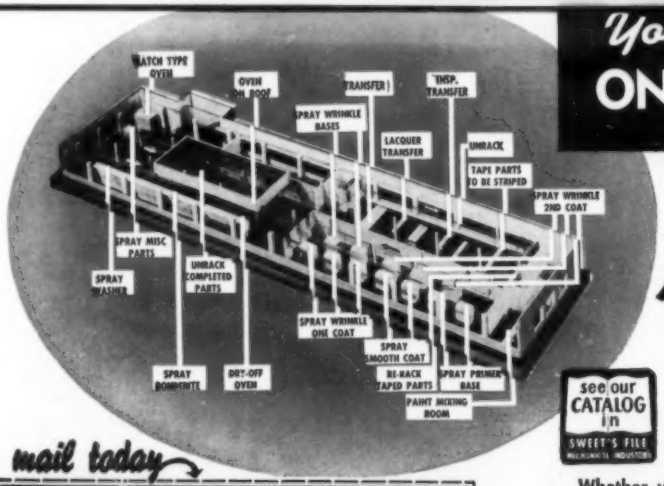
Close-up of man at work in spray-painting booth wherein wringer parts, hanging on conveyor, are coated with white enamel.

to the rear of the operators, passes under the sprayed parts, and is exhausted above and at the rear of the water curtain in the booth.

Leaving the spray booth the conveyor turns and enters the baking oven wherein it doubles back and forth several times during the baking process. The conveyor leaves the oven at the end opposite the hang-on station. Cooling is accomplished by the time the line dips

Your Finishing System -

Your Finishing System - ONE COMPLETE UNIT



Many manufacturers with finishing problems instinctively turn to Peters-Dalton . . . they are assured of answers acquired from more than 20 years of successful installation and consistent research and development.

Whether your problems concern porcelain enamelling or organic finishing, our trained sales engineers stand ready to submit layouts, operational costs and equipment estimates.

★

Shown at left is a mock-up of a job recently installed in a large typewriter plant

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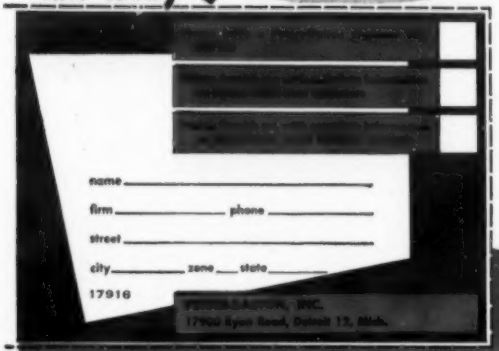


HYDRO-WHIRL

PETERS-DALTON Inc. 17900 RYAN ROAD DETROIT 12, MICH.

Packing finished wringers. Ten thicknesses of corrugated box board go into ends and cradling members of this box section for three completed wringers. Wax paper prevents chaffing of enamel in shipment. A bit of box board, folded under the top screw, protects the finish during shipment.

to the take-off station, or assembly "wheel" which is about 30-ft. from the oven.

Inspection, Assembly and Packing for Shipment

The assembly "wheel" holds wooden cradles onto which the partial assemblies are placed as it is slowly rotated. Three work stations are spotted around its circumference. Standards and collectors are removed from the conveyor and carefully inspected for any flaws in the baked enameling job; if okay, minor assembly parts are added. If flaws are found in the finish the places are circled with black pencil, rehung on the conveyor and moved to the re-work station which the conveyor passes.

Satisfactory parts go on around the "wheel" and are removed by a worker who installs pressure screw springs and spring clips before placing them in a cradle on the "wheel". The third man installs oil-impregnated hardwood bearings and rubber rollers and completes the assembly by driving two screws that fasten a standard to a collector, or a frame to a top.

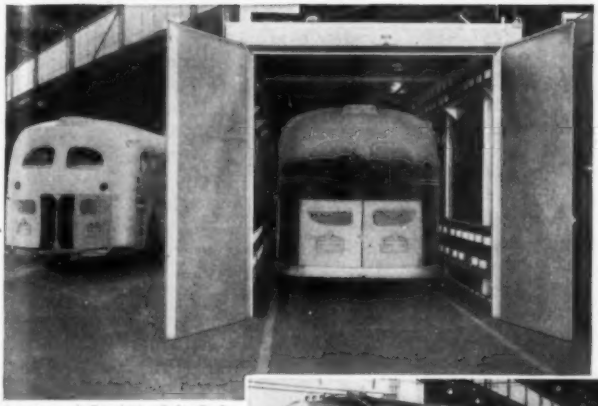
Actually this assembly "wheel" serves as a bank for assemblies and partial assemblies. Once a partial assembly is placed in one of the wheel's cradles, it can move around the circle until the various final assembly operations are performed —in pace with whatever minor difficulties the operators might have to contend with. Even when completely assembled, it might stay on the "wheel" until a worker at the last station is ready to remove it.

Completed wringer assemblies are placed on a roller conveyor line for movement through inspection, packaging and to shipping. A special inspection fixture duplicates the gear box of the washer on which the wringer assembly is to fit. Wringers are temporarily attached to it with steel pins. The latch mechanism is checked and the spring tension is tested. If approved, the wringer is stamped to reveal its model number, the date and the inspector's number.

Lovell's packaging of wringers safeguards their smooth glossy enamel finish. These wringers are cradled in two notched boxing mem-

Mask Their Busses Immediately For Next Coat After Quickdry

with BURDETT (INFRA-RED) GAS SYSTEMS



Interior of Burdett Infra-Red Oven—measuring 12' wide x 45' long x 12' high—shows General American bus with first finish coat of paint.

Just out of the Oven—General American Aerocoach has bright paint job dried quicker with Burdett Infra-Red System.

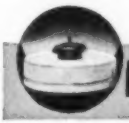
At the East Chicago, Indiana, plant of General American Aerocoach, two large **Burdett Infra-Red Gas Ovens** are used for paint drying of new busses. By using Burdett Systems, successive coats of paints are dried just as fast as the bus bodies can cool sufficiently to permit the placing of new paint masks.

There is no paint 'tackiness' . . . and no chance of a wet spot remaining. **Burdett Infra-Red** takes care of that. Lacquer dries in 15-20 minutes at 170°; enamel dries in 30-35 minutes at 180°.

For Burdett, these are unusually low temperatures and likewise slow drying *BUT* . . . it allows General American one unique feature. Their Busses can be painted fully equipped ready to drive away. There is no damage to glass, tires, engine or interior fittings.

Important!

Write today for colorful all-new 12-page Illustrated Bulletin. See what the Burdett Infra-Red System can mean to you.



3425 West Madison St., Chicago 24, Ill.

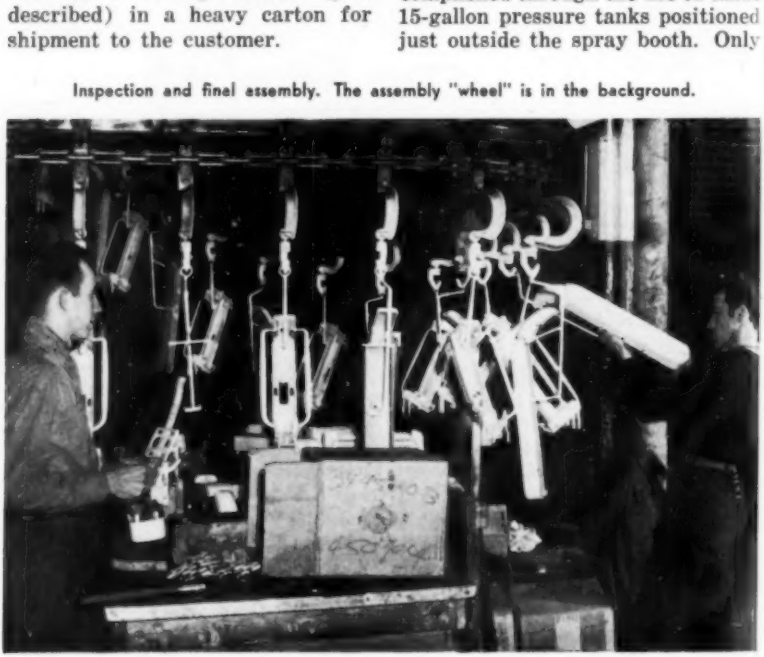
BURDETT MANUFACTURING CO.
INFRA-RED GAS BURNERS

bers that consist of ten thicknesses of corrugated box board. These members will give a little in rough handling, but will not collapse. They rest on the one-thickness bottom of a boxing section which has collapsed ends of the same thickness as the cradling members. These ends also have cut-outs where wringer protrusions can be accommodated when the ends are pulled upright; but as a final protective measure, heavy wax paper is used to line the insides of these ends, so that when the ends are pulled up and placed against the wringers, the box board doesn't contact the enamel and make chaffing marks during shipping. The packager sets the entire boxing section (just described) in a heavy carton for shipment to the customer.

Different Tints of White, as Ordered

In reference to the white enamels used, there have been no basic changes with conveyorization. White enamels are specifically formulated and tinted according to customer preferences. What are known as yellow and blue and pink whites are most generally used. Standard panels are submitted to the washer manufacturers for consideration, or the latter may submit specimens of the particular white they prefer. Because of the variety in tints and certain irregularities in scheduling, Lovell's must be ready to change quickly from one tint to another on the conveyor setup. This is accomplished through the use of three 15-gallon pressure tanks positioned just outside the spray booth. Only

Inspection and final assembly. The assembly "wheel" is in the background.



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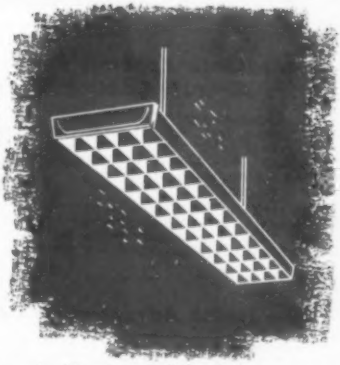
for FLUORESCENT REFLECTORS



CHARACTERISTICS:
Vedoc Reflector White has unusually hard surface and high reflectance qualities (consistently above 85%) . . . Retains original color and brilliance indefinitely . . . Easily kept clean (is unaffected by grease, dirt and most acids found in factories) . . . Highly resistant to heat, moisture and rust.

APPLICATION:
Only one coat is needed for steel. Finish is sprayed on . . . not over two one-thousandths of an inch is required.

BAKING TIME:
20 minutes at 300° F. or 7 minutes with Infrared. (Optional Schedules are available.) *Vedoc Reflector Gray, for channels and backs of reflectors, can be applied and baked at the same operation as the white.*

All Vedoc finishes are developed for a specific use, then slightly varied to best fit into each customer's setup. Write today for more information about these "better finishes". Also, ask for your copy of the new booklet, *A Review of Product Finishing with Organic Coatings.*

LIQUID PLASTICS DIVISION
FERRO ENAMEL CORPORATION
CLEVELAND 5, OHIO

one is ever in use, or under pressure, to supply all three spray painters—but a second tank is in reserve with the same tint. In other words, two pressure tanks of material are alternately used while on the same job. When a different job strikes the conveyor line, the third tank already has the tint of enamel required, ready for a quick switch-over for the three spray painters.

The pressure tanks are filled from drums, as received. Underway at Lovell's is a relocation of its paint storage in a small area adjacent to the conveyor line for enameling. Roller conveyor sections will be placed on the floor to form a path on which to move drums of material into the pressure tank room.

In order to circumvent possible shutdowns of the gas-fired oven used for baking the enamel—due to gas shortages for industrial use during weather extremes—Lovell's recently installed an electric standby heating unit. Heating is accomplished by circulating clean air over banks of electric elements. The change from one type of heating to another is done with an arrangement of baffles regulated with a single control.

Monsanto Appoints Patrick to Aircraft Coating Sales

Appointment of Rhoderic K. Patrick of Muncie, Ind., as salesman in the aircraft coating sales development section of Monsanto Chemical Co.'s Merrimac Division was announced recently.

Connected closely with the aviation industry in the Central States for several years, Patrick has been assigned to sales of "Skylac", the division's flame-retarding fabric surface coating for aircraft.

Goldsmith Advanced by Du Pont

Appointment of Harold E. Goldsmith as regional sales manager for the Boston region of the Fabrics & Finishes Dept. of the Du Pont Company has been announced. Dr. Goldsmith succeeds Sumner B. Woodbridge, who retired after 41 years in the company. Dr. Goldsmith has been in research and sales work with the Du Pont Company for 22 years.

His first assignment with the company was at the Du Pont Experimental Station at Wilmington in February of 1926, where he conducted research work on finishes. He has been in the field of finishes ever since.

From 1932 to 1943 Dr. Goldsmith was assigned to the Du Pont automotive sales office in Detroit, and traveled all over the United States in connection with the introduction of new finishes in the automobile industry. From 1943 to 1946 he was assistant manager of automotive finishes sales at Detroit. Since 1946 he has been on special assignments in the field of automotive and industrial finishing problems.

Jones-Dabney Co. Adds Two Eastern Representatives

The Jones-Dabney Co., Louisville, Ky., through their Mr. J. C. Knochel, Sales Manager of the Resin & Grinding Liquids Division, announces an expansion in their sales representation in the East with the additions of Mr. W. W. VanWey and Mr. E. J. Conway.

E. J. Conway and W. W. Van Wey

Mr. W. W. VanWey will make his headquarters in Philadelphia and will also cover the states of Maryland, Virginia and North Carolina. Mr. E. J. Conway will handle the sale of resins and grinding liquids in the metropolitan New York area.

Both men have had long experience in the paint industry, having been with other large companies before joining Jones-Dabney.

ou "out on the limb?"

It's no place to be... That's why now is the time to review your finishing materials and methods. Your finishing costs have a direct bearing on your *total* end-cost . . . going far beyond the cost per-gallon of the finishing material itself.

From first to last, there are many factors where the right finishes, correctly applied, can bring you real savings. In drying time, for example . . . or storage space, labor costs, percentage of rejects, and packaging operations.

Improve overall production and handling economy in your plant . . . by calling on Du Pont. Today, thousands of pretested formulas under the trade names "Duco" and "Dulux" are helping to keep manufacturers' end-costs at a minimum.

FOREMEN, SUPERVISORS, EXECUTIVES: *If you have a finishing problem involving costs, performance . . . or a tough technical "bug" . . . write to E. I. du Pont de Nemours & Co. (Inc.), Finishes Division, Wilmington 98, Delaware.*

DU PONT

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TER FINISHES

BETTER THINGS FOR BETTER LIVING
...THROUGH CHEMISTRY

Product Designing Firm Expands Facilities

In Chicago, James F. Barnes, 40, idea salesman-president, and Jean O. Reinecke, 37, product designer-vice-president, with their 14-year old firm (Barnes & Reinecke) of over 200 designers and engineers, sat back and watched the fast arriving "buyer's market" with a quiet air of confidence.

They had a right to feel self-assured. Their industrial firm has acquired the old established Shoberg Tool Co., and converted it to their new machine engineering and building division. Now, with facilities to give clients a full gamut of services ranging from product styling all the way through model making, packaging, plus their new division, they are organized and ready to tackle anything.

Midwestern production men are intrigued and deeply interested in their operations, particularly in the cost-saving methods. The firm is showing manufacturers new tricks by taking standard production items and machine parts and adapting them into newly designed special-purpose, high-speed, automatic, mass-production machinery. The firm is located at 230 E. Ohio St., Chicago, Ill.

Smith-Davis Co. Adds Two More Men to Its Organization

G. Klinkenstein, Vice-President of the Smith-Davis Co., manufacturers of specialized production finishes, trade sales finishes, and maintenance finishes, located at 10751 Venice Blvd., Los Angeles 34, Calif., announces the addition of two men to its company.

Dr. K. J. Keating has been appointed Manager of the Smith-Davis Co. which is a division of Maas & Waldstein Co., Newark, N. J. Dr. Keating received his education at North Dakota Agricultural College where, upon completion, he was retained by that Institution for two years to serve as instructor in paint, varnish, lacquer, and industrial chemistry.

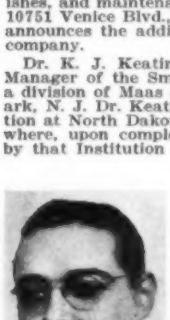
Prior to his appointment with the Smith-Davis Co., Dr. Keating was associated with several national organizations in executive capacities.

"The appointment of Dr. K. J. Keating to his new position," states G. Klinkenstein, "will do much toward aiding and improving that organization both sales and production wise."

Murray M. Win has recently been appointed to the sales force of the Smith-Davis Co. where he will cover a large section of the Los Angeles territory. Mr. Win has had many years of experience in the field of specialized production finishes, having served as sales engineer for some of the larger eastern paint, varnish, and lacquer manufacturers.

Mr. Win's experience and knowledge of handling all types of specialized production finishes will help to make Pacific Coast manufacturers' finishing problems simpler.

This brings a total number of nine sales engineers to the Smith-Davis Co. sales force, thus offering greater efficiency and more personalized service.



Murray M. Win will cover part of Los Angeles territory for Smith-Davis Co.

Du Pont Licenses Making of Metalli-Chrome Lacquer

The Du Pont Co. announces that it has granted free licenses to 50 paint and lacquer companies for the manufacture of a new type of metallic finish which Du Pont markets as "Duco" Metalli-Chrome Lacquer.

E. S. Nickerson, general manager of Du Pont's Fabrics and Finishes Department, said that the licenses provide not only for the use and sale of the lacquer itself under a product patent but also for that part of another patent covering the process for its manufacture. He said that free licenses would be granted to all interested paint and lacquer manufacturers who request them.

Utilizing new pigment materials and techniques, Metalli-Chrome lacquers are extremely durable and provide rich, lustrous colors and color effects. They are designed for railroad coaches, automobiles, and other metal objects such as cash registers, calculating machines, typewriters, filing cabinets, metal furniture, novelties, and vending machines.

Moore Appointed Sales Mgr. for Optimus Detergents

Mr. Van Winkle Todd, President of Optimus Detergents Co., Matawan, N. J., has announced the appointment of Mr. Clark Moore as Manager of Sales. Mr. Moore brings to Optimus a wealth of experience in the sale of industrial products.

A FINISHING PROCESS—COATING WITH

FLOCK

Some highlights on the use of flock which produces colorful velvet and suede-like coatings of utility and beauty for parts and entire areas of products.

By C. C. Fairweather

THE PROCESS of coating the surfaces of a product with colored flock fibers, to produce a soft velvet-like pile finish, is a fascinating technique in modern finishing. Quoting from the literature of one manufacturer of flock:

"To dull, unattractive, colorless products, flock imparts the life-giving color, beauty and prestige of a fine jewel box. To hard, rough-surfaced products, it lends the luxurious softness of plush or velvet.

"Functually, a flock finish renders products mar-proof, snag-proof and glare-proof. It covers or hides magically. It has excellent acoustical and insulating properties."

Flock has a definite place among modern industrial finishes — both utility and decorative. Its uses are many and varied. Practically any kind of material — wood, metal, glass, ceramic, plastic, paper and cloth—provides a suitable surface for the application of flock.

Flock Made of Rayon, Cotton or Wool

Flock is available in any color, in fibers of uniform length, ranging from 1/32-in. to ¼-in. long, or longer on special order, and in rayon, cotton and wool. The purpose for which the flock coating is to be applied and the finished effect desired will determine which type and which length of fibers to use.

Cotton flock will produce a suede like or smooth felt finish. Rayon fibers will simulate velvet, velour, plush and carpet. Wool may be used to produce a rough felt, mohair or fibrous finish. Cotton flock is generally used as a protective finish inside jewel and silver cases, in silverware drawers, on the bottoms of desk and table objects, candlesticks, etc., and to produce a non-glare surface.

Rayon flock is used for decorative finishes on all sorts of products in wood, metal, glass and paper, and for insulating and sound-proofing. One of the principal uses for the latter is to coat the interiors of aircraft, both pas-

senger and cargo. Wool flock is used for some decorative work, gaskets, and any place where a fibrous finish is desired.

Adhesives Are Important; Several Kinds Available

The principle of flock finishing is fairly simple. The surface of the object to be finished must be clean and reasonably smooth. If it is a porous surface such as cloth, soft paper, papier mache, strawboard or some kind of open-grained wood, sealing the pores is necessary. *The adhesive must not be absorbed by the porous material; it must remain on the surface, and stay wet until the flock fibers can be applied.* Any sealer may be used that will work compatibly with the type of material to be flock-coated and with the adhesive to be applied.

Adhesives include water-soluble glues, enamels (natural, synthetic and alkyd-resin) lacquer and special rubberized glues. Choice of adhesives depends largely upon the type of material, ultimate use of the object and the color effect desired. For instance, water-soluble glue should not be used as a flock adhesive on any object designed for use in the kitchen, because of its water-soluble properties. Also, being a transparent glue, it should not be used as an adhesive for any opaque finish. Where these properties do not affect its use, it is a reasonably strong base for flock, and is certainly the cheapest of all adhesives.

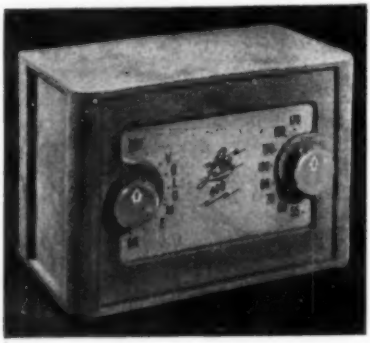


Table radio cabinet finished in flock. Photo, courtesy of the Claremont Waste Mfg. Co.

Colored Enamels as Flock Adhesives

Natural and synthetic enamels are widely used as flock adhesives. They are water resistant and their solvents evaporate slowly, thus leaving the film wet longer and allowing more time to apply the flock fibers. They are available in all colors and they provide an excellent base for an opaque finish.

Alkyd-resin enamels and rubberized glues are generally used on highly special flock finishes. Alkyd-resin is highly water resistant and provides an extremely tough film. It is adapted for use on objects that will be subjected to excessive moisture and wear. Rubberized glue is even more water resistant and it is also a very tough adhesive. It is seldom used except for special applications.

Clear or pigmented lacquers make excellent flock adhesives. They are adaptable for use with either translucent or opaque finishes. They are water repellent. Since the solvents evaporate rapidly and the film dries quickly, exceptional speed is necessary in applying flock fibers to a lacquer adhesive. *(To page 82)*

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Why not take advantage of this "something extra" for *YOUR PRODUCTS.* Let our industrial experts check over your finishing requirements . . let them analyze your present finishing methods. Backed by years of "finishing know-how," they may be able to offer suggestions for possible improvement that will lead to greater savings . . improved quality of your product . . increased production. Write us today. Berry Brothers, Detroit 7, Michigan.

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Half a Dozen Ways to Spread Adhesives

With the exception of rubberized glues, all of these adhesives may be applied with such ordinary equipment as spray guns, roller coaters, dipping, silk-screen squeegee, or brushes. The most desirable method of application depends upon the object to be finished, the material from which it is made; the shape, size and character of the surface area to be coated.

Record player turntables are generally sprayed; flat sheets of paper, straw and composition board, glass, wood or metal—where the entire surface (if fairly large) is to be finished—may be roller coated. For an over-all flock finish, toys may be coated with adhesive by dipping. For embroidery patterns on cloth, greeting cards, and for fairly small surface areas or partial finishing, the silk screen method of application is widely used to apply the adhesive. For very limited production and reasonably small surface areas, the adhesive may be brushed on. Rubberized glues may be sprayed if production warrants, or they may be spread on by any of the other methods excepting silk screening. This adhesive cannot be applied through a screen due to its excessive "gumminess."

Applying Flock Coating to Wet Adhesive

Care must be used in handling flock fibers. If rayon and cotton fibers are to be combined to produce a certain texture of finish, the two must be thoroughly mixed and all flock, regardless of type, must be kept dry. Moisture causes the fibers to cling together and become "lumpy". In especially damp climates, or where there is a high percentage of humidity, some sort of forced drying is necessary, both in storage and during application of the flock.

The two general methods of flock application include the shaker or vibrator method and spraying. Both methods have several modifications. There are several types of vibrators, ranging all the way from a screen in the operator's hands to conveyorized shaker screens. For spraying there are several types of nozzles for different classes of work.

The type of object, surface area, kind of adhesive, and volume of production are determining factors in the choice of which method of application to use. If the object is large, such as the interior of an airplane, spraying is the only practical method to use. For fairly small flat sheets of any material, a shaker or vibrator is adaptable.

Vibrators are generally made with a taut cloth bed under which several square beater bars revolve at high speed, causing the cloth bed to "bounce" the fibers very rapidly. Flock deposited on the bed bounces with the movement of the cloth, and when the flat sheet, wet with adhesive, is exposed to the vibrating bed, the bouncing fibers stick to its wet surface. If production warrants, this same principle may be used as the coated flat sheets are carried through a vibrator machine on an endless cloth belt which, inside the machine, becomes the shaker bed. *(To page 84)*

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AMONG THE MILLIONS of consumer and industrial products produced throughout all industries you will find that many are beautified and protected with *Finishes by Stanley*. If your product requires a finish to resist corrosion, sunlight, heat, cold, foods, dirt or aging . . . to add sales appeal or increase durability, Stanley chemists can suggest or create a coating that will solve your finishing problem. For evidence of our ability, write or wire Stanley Chemical Co., East Berlin, Conn.

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INDUSTRIAL COATINGS

LACQUERS SYNTHETICS JAPANS ENAMELS

The type of nozzle used for spraying flock depends upon the fibers used, size of area to be finished, volume of fibers to be applied, and quality of finish desired. If spraying is done in a booth, some means should be provided for collecting and retaining "overspray flock" for re-use.

After application of flock the work must be allowed sufficient time to dry. This drying period will vary with the type of adhesive used, thickness of the film and the fiber coating. If the work is to air dry, a flock coating on a lacquer-base adhesive will dry in about four hours. Other adhesives should dry over night. If force drying is to be used, the flock-coated surfaces may be dried in five to 15-minutes, depending upon the heat limits of the material and the adhesive used.

Through the use of adhesives differing in color from the flock fibers, shades may be varied in the finished coating. Ordinarily, it is customary for the flock to be practically the same color.

It is also possible to apply flock on a flocked surface. For example a flat sheet is given a background coating of dark blue. This is allowed to dry thoroughly, then a white adhesive is applied to the flocked surface through a silk screen to form a trade mark, name or some design. White flock is quickly applied to the wet surface. When dry, it gives the appearance of an applique.

Napko Paint & Varnish Works Completes New Laboratory

Paint raw material salesmen and representatives from a wide area recently attended an "Open Lab" party at the Napko Paint & Varnish Works in Houston, Texas. The event marked the completion of the company's new laboratory, enlarged in size and scope in recognition of the ever increasing importance of adequate technical facilities to cope with modern protective coating problems. Material men were escorted through the entire Napko paint products identified for the occasion with the names of the suppliers whose raw materials went into their manufacture.

Mr. S. E. Royse of Napko (left) and some of his important guests at the "Open Lab" party.

How many objects in this office are finished with FERBERT-SCHORNDORFER products?
Only 14 objects in this picture have Ferbert-Schorndorfer fine finishes. But many manufacturers of office equipment have standardized on F-S finishes!
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CUSTOM FORMULATED FINISHES FOR ANY PRODUCT OR PRODUCTION PROBLEM!
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F-S

On Thursday, March 4, I presented a paper on the subject "New Finishes for Furniture" at the opening session of a meeting of the Production and Cost Division of the Southern Furniture Manufacturers' Association, at Roanoke, Virginia. Believing that this will be of interest to readers of Industrial Finishing, I am attaching a copy which you are at liberty to print, either in full or in part. I have the permission of the Southern Furniture Manufacturers' Association for the release of the paper.

Very truly yours,

Wayne R. Fuller

Wayne R. Fuller
Director of Research

Finishes for Furniture

By WAYNE R. FULLER

Director of Research
Grand Rapids Varnish Corp.

FURNITURE makers do not need to be told that some finishing problems originate in the cabinet shop. One such problem is "vagrant" glue—spots or smears of glue that get on the surface during the joining of the furniture. It is extremely difficult to detect these spots without visual aid. Their detection is made easy by incorporating a fluorescent dye in the glue and inspecting the furniture in the white under infra-red or black light. The inspection may be made in daylight and may be facilitated by mounting the black light lamp so it is counterpoised and swings over the work on a bracket. Some factories are using this plan now and others are testing it.

Bleached Hardwoods for Blond Finishes

The usual method of bleaching is by the use of two solutions, which may be applied consecutively or pre-mixed just before use. One of these is an alkaline solution, the composition varying with the source. The other is concentrated hydrogen peroxide. It is oxygen from the hydrogen peroxide that does the bleaching; the alkaline solution helps only by accelerating the liberation of oxygen.

Some furniture plants have adopted a process which eliminates the alkaline solution. In this process the wood is wet thoroughly with hydrogen peroxide and then immediately moved into a tunnel or room where it is exposed to ammonia fumes, obtained either from liquid ammonia or as dry ammonia gas in cylinders. Advantages of this method are speed, economy and absence of alkaline compounds which must be removed from the wood by thorough washing with

RED X

DURAFILL

ANOTHER PROVEN FUSION-TYPE FINISHING MATERIAL

STAINS AND FILLS IN ONE OPERATION

Finish schedules that formerly required up to *20 hours* from raw wood to the rubbing operation can be reduced to about *3 hours* by using Durafill.

In addition, Durafill provides transparency, brilliance and color depth; does not raise grain; can be recoated with lacquer immediately after wiping and cleaning. Enables the lacquer to "fuse" and bind entire finish into one coat from wood fibres up. And most important—Durafill retains its color *permanently*—because it is made from non-fading dye stuffs and pigments.

Red-X Durafill promotes toughness, adhesion and durability. It can be applied by spraying, brushing, flooding or dipping. Requires no "flash-off" or "ripening" before wiping. Wipes as easily as a conventional filler . . . does not pull or become sticky. Fills pores flush. Does not "puff," "lift," "shrink" or swell when coated with sealer or lacquer.

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water. Our tests have shown that the ammonia method does not give as white a bleach as the older method.

One of the problems with bleached finishes is gradual development of an amber cast as the furniture ages. Possibly some finishing departments are not aware that this discoloration can be substantially reduced by a final wash of 1½-lbs. of sodium bisulphite in a gallon of water, sometimes known as acid rinse.

Stain-Filler Combination Serves a Useful Purpose

As a rule, when one finishing material is made to serve the purpose of two, there is a sacrifice in the results obtained. Now I shall discuss an exception to this rule. The usual procedure in staining with non-grain-raising stain calls for a wash coat over the stain. As you know, the purpose of this wash coat is to keep the filler from smudging the stain. The result of its use is a clearer color and a sharper pore. The stain and the wash coat can be combined without sacrifice in results. In fact, there may be an improvement in uniformity of staining. The only loss is to the finish manufacturer who sells fewer gallons.

While combination stain-fillers are not new, they justify consideration at this time because they have been improved during the past year or two and their use is increasing. A stain-filler should not be thought of as a mixture of stain and filler. Essentially it is a filler in which are incorporated the same dyes that are used in non-grain-raising stains. As a filler it performs the same or almost the same as a straight filler. As a stain it has deficiencies in uniformity of color, richness of color, sharpness of pore and depth and range of colors obtainable. If the wood has soft spots, stain-filler will produce an uneven color. It seems to me that these shortcomings are largely inherent in stain-fillers and that stain-fillers do not, and will not, belong on good furniture. They have been used on table model radio cabinets and various novelty or inexpensive items.

As manufacturers of good furniture, you are not much interested in stain-fillers but more concerned with regular filler. It is my impression that filler is the cause of more trouble than any other finishing material, and that *some of this trouble is not recognized as filler trouble but blamed on other factors.* This situation is explained, I believe, by two things: 1) Fillers have the most serious technical shortcomings. That's up to the finish manufacturer. 2) You abuse them the worst. That's up to you.

What a Filler Is For, and How to Use It

Let's consider first the abuse of fillers. One thing that a filler is supposed to do is fill. How well it will fill depends mainly on *how it is used*, not how it is made. In some plants filler is wiped while it is almost wringing wet; in others it is allowed to set until much too dry. In either case the result is poor filling. Everybody knows that *the proper time for wiping filler is when it first flats.* The period of time during which filler will wipe properly can be greatly lengthened by reducing with mineral spirits

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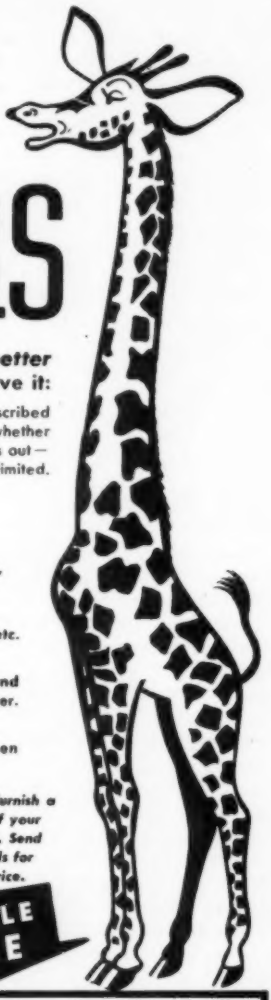
THINNERS



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LT 2725
Maximum economy in a good lacquer reducer!

LT 2726
If you need an all-around general purpose lacquer thinner, this one is hard to beat.

LT 2727
An excellent reducer for automotive and furniture lacquers, etc.

LT 2728
Recommended wherever blushing is normally encountered and maximum lacquer flowout is necessary. A high quality reducer.

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Highly efficient lacquer retarder, for use with any lacquer when necessary to eliminate blushing.

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or cleaners' naphtha; instead of VM&P naphtha; yet some plants refuse to help themselves by making this simple change.

The other side of the story is that fillers, the best of them, when properly used, have serious shortcomings. Over night drying fillers differ slightly or none from the products made several years ago. Some of them have, within the past few years, been improved in drying properties, so that they have a margin of safety. While generally satisfactory in performance they are not foolproof and occasionally, under certain local conditions which it is difficult to pin down, they may exhibit any of the troubles that fillers can cause.

Quick Drying Fillers Produce Real Problems

The filler problem has been made more serious by the growing use of quick drying fillers. A few years ago we thought that a filler which dried to recoat in four hours was fast. Now air drying schedules are as short as 15 minutes, with one to two hours fairly common. Conveyor schedules in the South usually run 60 to 90 minutes at about 120° F. In other sections they are more often 30 to 45 minutes at 125° to 140° F. Regardless of schedule, you want the filler to wipe easily, do a good job of filling and be free of defects such as popping, shrinkage and turning gray in the pores. This is a big order and if you have tried quick drying fillers thoroughly, you are well aware that the order has not yet been filled.

The explanation of this is found in the nature of fillers as they have been made to date. Filler users are inclined to over-simplify my classifying fillers as oil type, or slow drying, and resin type or fast drying. This classification is misleading. It fails to recognize that modern overnight fillers contain some resin, and that even the fastest fillers contain drying oil.

All filler liquids are essentially combinations of drying oils and resins. In quick drying fillers the more rapid drying is obtained primarily by using less oil and more resin, and by choice of the type of resin. Inasmuch as it is the nature of resins to be sticky, quick drying fillers do not wipe as easily as overnight fillers, and they have a shorter wiping period. The user is inclined to solve this problem by wiping the filler while it is too wet, which results in poor filling. At times the filler manufacturer has solved the wiping problem by greatly reducing the amount of binder in the filler liquid, which means that the filler left in the pores is almost a dry powder.

No filler liquid really dries in a fraction of an hour or even a few hours. In that period all that happens is that the thinner evaporates and the binder "sets." When lacquer sealer is applied there is more or less fusing of the lacquer with the binder of the filler. Quick drying fillers have been improved during the past year but they still lack foolproofness to an even greater degree than overnight fillers.

In my opinion, so long as filler liquids contain drying oils as an important constituent they will retain present weaknesses to a considerable degree, and improvements will be restricted. I look forward

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to fillers that contain no drying oils, can be recoated with safety as soon as the thinners have evaporated, wipe easily, have good filling when used properly, and almost foolproof.

Lacquer Finishes for Furniture

Now let's skip to the clear coats that follow the coloring and filling processes. It seems logical to start with lacquer, inasmuch as it is the standard finish for a lot of good furniture. Of late there have been no really significant changes or improvements in furniture lacquers. They are at least equal to prewar. They may be slightly better, as a result of improved resins of the same general types used before the war.

In keeping with the fashion trend, lacquer has adopted a "new odor" during application. Most finishers think it is a worse smell. The explanation is decreased use of ester or acetate solvents and increased use of ketones, such as MEK (methyl ethyl ketone) and MIBK (methyl isobutyl ketone).

This change has been dictated by greater availability and economy of ketone solvents. It would be impossible to supply the volume of lacquer that is being consumed today with ester solvents only. The increase in the price of lacquer has been less than the increase in the average price of solvents and much less than the price of ester solvents.

Thin Sealer Coats That Are Effective

It is unsafe to apply a heavy coat of sealer that is formulated on conventional lines. With all sealers there are disadvantages in heavy coats, and little or no advantage. In view of these considerations, I think it is inadvisable to use a sealer having more than 21% solids. Many concerns seem to assume that the top coat of lacquer governs the quality of the finish, and the sealer doesn't matter. Where this attitude prevails the sealer is selected with an eye to easy sanding only (or should I say an arm to easy sanding?). In case your best friends won't tell you, I shall. The sealer coat affects the toughness and durability of a finish fully as much as the top coats. The sealer should always be the quality companion of the top coat lacquer.

Finishing Leather Tops of Desks and Tables

The finishing of leather tops of desks and tables has always presented quite a problem. In case you are following the conventional procedure of applying a regular furniture glaze over a special lacquer ground coat, I wish to mention two different procedures that replace the glaze with special materials and produce a finish having better adhesion and a better color effect.

In the first method a new product known as French polishing stain is spray shaded over the ground coat to the approximate depth desired and then immediately padded, using cheese cloth wet with French polishing solvent. This padding operation is similar to the blending of a glaze. The stain is allowed to dry one hour or longer before applying the clear top coat.

In the second method, special leather padding stains are used and they are applied by padding instead

You can produce on any material the following surface finishes:

FELT - SUEDE LEATHER - MOHAIR VELOUR - VELVET - CARPET

FUNCTIONAL USES

Used in the auto, airplane, radio, electrical, phonograph, ceramics, furniture and many other industries for surfacing all sorts of materials to provide

TEMPERATURE INSULATION • SOUND DEADENING • INTEGRAL GASKETS • SHOCK ABSORBING SURFACE • NON-MAR SURFACE • NON-GLARE SURFACE

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Applied in various lengths and colors to wood, paper, cloth, metal, etc., the following effects are produced—

FURNITURE UPHOLSTERY • SUEDE LEATHER • INTERIOR AND DRAPERY FABRICS • VELVET • VELOUR • MOHAIR • CARPET

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FELT AND SUEDE SURFACE

*"Raymix"—a flock of rayon fibres, trademarked under U. S. Patent No. 427949 to produce a suede effect of utmost realism on any surface.

*"Kingcote"—a cotton flock trademarked under U. S. Patent No. 423572, producing a suede effect at minimum cost.

MOHAIR, VELOUR AND VELVET SURFACE

"Raycote"—a flock composed of uniformly cut rayon fibres to produce on any surface a pile effect such as velvet, plush, or velour. Made under U. S. Patent No. 2014947.

SYNTHETIC CARPET

"Harecote"—a flock composed of animal fibres, produces a durable carpet or rug material.

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of spraying. Further blending is done with a pad wet with the French polishing solvent previously mentioned.

Rubbing with Oil Often Results in Trouble

There is a trend away from rubbing lacquer with oil and pumice. If possible, I would say something that would make it a stampede. Two things are wrong with oil rubbing: First, it is too slow and expensive. Second, it is likely to lead to blooming or haziness. In the rubbing operation the first object is to cut the finish down to a perfectly smooth surface. This can be accomplished most economically by naphtha sanding with No. 60 paper, using a machine and block. The job can then be completed by a quick rub with colored semi-paste wax on a pad of steelwool. For a somewhat better job, the steelwooling can be replaced by rubbing with a compound containing a mild abrasive, finishing off with liquid polish or wax. The paraffin oil that is used in oil rubbing softens the lacquer and is taken up by the lacquer film. Later it comes to the surface and the finisher describes it, not as an oil bloom, but as a lacquer bloom. The solution is obvious: Eliminate the oil.

Baking Varnish as a Finish on Furniture

The only varnish product that comes under the heading of new finishes is synthetic baking varnish. While introduced just before the war, it became unavailable during the war and since then has been adopted in a relatively few plants. In referring to synthetic baking varnishes, I have in mind only those varnishes that contain heat-convertible resin, and dry on a schedule of about one hour at approximately 140° F. Today these varnishes are blends of alkyd resin (for toughness) and urea-formaldehyde resin (for speed and hardness) perhaps with some phenolic or maleic resin for additional hardness. It is necessary to use a curing catalyst for the urea resin. This may be incorporated in the varnish as shipped, but more often it is dissolved in a special reducer.

When used over lacquer sealer which is standard practice, synthetic baking varnish produces a finish that is definitely inferior to good lacquer in toughness and all around quality. The toughness can be improved somewhat by replacing lacquer sealer with a thin coat of synthetic baking varnish, but it would require a separate bake and sanding would be poor. I have three panels which exemplify these points. It is entirely feasible to make a synthetic baking varnish that is extremely tough, but it would require a longer baking schedule and would have to be used as the sealer as well as the top coat, necessitating two bakes.

The main advantages of synthetic baking varnish are alcohol resistance and superior build, which permits satisfactory body in one coat over sealer. Production disadvantages are poorer rubbing and difficulty in repairing damage. The strongest point that can be made for it seems to be economy.

What I have just said about synthetic baking varnish is based on the product that has been available up to the present time. The future

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Production Finishes
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ENAMELS FILLERS
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PRIMERS STAINS
SYNTHETICS VARNISHES
New Period Products Produce a Fine Finish at Low Cost
New Period chemists constantly work to build better finishes . . . faster schedules . . . at less cost.
SEALERS—Provides excellent body, dries fast and sands easily.
LACQUERS—CLEAR & SEMI-GLOSS. Uniform and dependable—Suitable for coating almost any surface—Provides more coverage and unusual mileage. Cuts costs.
LACQUER ENAMELS—FLAT & GLOSS. Available in a wide variety of matched colors and shades. Widely used by leading manufacturers.
SYNTHETIC ENAMELS—A durable and trouble-free finish for fast production. Built to meet the most exacting production schedules.
FILLERS and STAINS—New Period has long been famous for its Fillers and Stains. Specially formulated for mass production use. Unequalled color-matching service.
Remember New Period Finishes for Quality and Service
MANUFACTURERS OF FINE PRODUCTION FINISHES
NEW PERIOD Production Finishes
ESTABLISHED 1917
NEW YORK WOODFINISHERS' Supply Co.
109 IMLAY STREET BROOKLYN, N. Y.

may be a different story. The prospect for radical improvement is much greater for synthetic baking varnish than for nitrocellulose lacquer. Resin manufacturers are doing extensive research which reasonably can be expected to lead to products that are better and perhaps faster. I recommend that you maintain an open mind. If some salesman comes along with a story that sounds just too good, don't dismiss him lightly; he might be right.

Conveyor Installations; Faster Schedules

As my final point I wish to comment on the general trend toward faster schedules and especially conveyor installations. The constant pressure from you furniture manufacturers for faster schedules has spurred us chemists in our efforts to achieve them. At any given time, however, speed beyond a certain point can be obtained only at a sacrifice in quality. Too often furniture plants demand speed beyond that which is compatible with quality. The finish supplier comes through with the speed and is inclined to say little about quality, lest a competitor who is not so frank be given the business.

This point requires careful consideration when laying out a converyor installation. The use of conveyors is spreading rapidly and they promise to become as standard as spray booths in large production plants. When a furniture maker decides to install a conveyor usually the first step he takes is to call in the equipment manufacturer. Between them they work out the time schedule for the finishing operations. From the angle of cost the manufacturer wants the shortest conveyor that will do the job.

The equipment man does not wish to kill a sale by too high an estimate. So they figure everything to the bone and assume, or hope, that materials can be made to fit the conveyor. They are prone to lose sight of the fact that some coatings require a period of air drying before they will stand a blast of hot air; that sealer needs to cool down before it can be sanded; and that lacquers won't flow if sprayed on warm surfaces.

The equipment is ordered and perhaps is in process of installation before the finish supplier is let in on the secret. Then follows a period of headaches for everybody while materials are reformulated to adapt them to the conveyor. In this case adaptation to environment consists roughly in taking out quality to put in speed. Most of these difficulties would be avoided if the time schedule were worked out in collaboration with the supplier of finishing materials.

Throughout this article I have tried to present the facts as I see them, without regard to anybody's toes. I have tried to stay down to earth, avoiding flights of fancy and this much we can be sure: the progress you have witnessed in the past will be continued in the future. With hundreds of chemists working constantly on your problems, I have no doubt that the future will unfold advances far more significant than any I have mentioned today. Some of these things can be seen now in the offing. Time and research will bring them closer, until at last they are here. THE END

SPRUANCE QUALITY

SINCE 1906

ALCOHOL RESISTING

Furniture and Bar Lacquer

SHEENS VARYING FROM HIGH GLOSS TO FLAT

- HIGH GRADE DURABLE FINISH
- COLD CHECK RESISTANCE
- LASTING BEAUTY

Maybe we have the answer to your Finishing Problems. We invite your inquiries and cheerfully offer the facilities of our technical staff.

The Gilbert Spruance Company

RICHMOND AND TIOGA STREETS
PHILADELPHIA 34, PENNA.

Burning-in Knife; Heater

We are in the market for one heat-knife furniture patcher and an electric furnace for heating the knife.—V.F.

Try Finishine Laboratories and H. Behlen & Bro.—ED.

Bleach for Dark Wood

We would appreciate your advising us the best bleach to use in connection with bleaching out dark wood in yellow birch. —C.F.Co.

So many concerns make and sell materials for bleaching the color out of wood that, in a letter, we are naming a few of those closest to you.—ED.

Metal Casket Highlighting

Please advise me where I can get gold, silver, copper and bronze paint or lacquer which may be used to highlight metal casket corners, giving the appearance of an electroplated surface.—A.C.Co.

Several concerns can supply what you want. In a letter we are naming a few of them.—ED.

Plastic Finish for Bowling Pins

I am eager to get in touch with a manufacturer or jobber that makes or sells a plastic finish or dressing for bowling pins. I hope you can suggest someone. I understand there are two or three in the west who are using this finish, but they won't sell it. They insist on the pins being sent to them, which makes it prohibitive for us. —M.G.Wright, Hartford, Conn.

In a letter we are naming some concerns who may be in position to supply what you want, although we are not sure about it.—ED.

Conical Mandrel for Testing

We are interested in purchasing a conical mandrel for paint film evaluation, and so far have been unable to locate a firm that manufacturers this instrument. The A.S.T.M. offers a set of blueprints for construction of this instrument, but we would prefer to buy it, if possible.—Easy Washing Machine Corp.

We believe that such a device can be obtained from Henry Zuhr, 187 Lafayette St., New York, N. Y.—ED.

Buffing Wheels

Will you kindly furnish us with information as to where we can purchase buffing and polishing wheels for use on white enameled toilet seats?—M.G.Co.

Several concerns can supply what you need. In a letter we are naming a few of them.—ED.

Roller Coater Wanted

We have been informed that you would probably be in position to give us the names of a few manufacturing firms who make what might be termed a roller-coater for priming door panels. This, we take it, is something similar to a two-roll glue spreader but will require different rolls for priming work.—F.&L.

Try Black Bros. Co., Inc., Menodta, Ill. —ED.

Hand Sanding Aid

We have noticed, in one of your issues a few months ago, an article on hand sanding. You gave reference, as we remember, to some kind of a machine used for hand sanding, this machine in question was made to fit the hand and fingers —to protect the operator.

We are wondering if you will understand exactly what we mean by what information is given to you, but in the affirmative, we shall appreciate it if you would be kind enough to give us the name and address of the firm manufacturing this kind of a hand sanding machine and we thank you for the opportunity of hearing from you soon regarding the above.—C.&S.

We are not sure what you have in mind. A "Detro Super-Flex" sandpaper holder that fits the workman's hand is described and illustrated in Nov. 1947 issue, page 106. The makers name and address are given in the article.

Another sandpaper holder for special light hand sanding is described and illustrated in Dec. 1947 issue. page 112.

Perhaps you saw the illustrated feature article "Sanding Suggestions for Finer Finishing", by Arthur P. Schulze, which

appears in August 1947 issue, starting on page 37. Illustrations in this article show three different makes of power driven portable sanders.

If you have in mind a small portable power-driven machine for sanding, there is from one to three makes of these shown in the advertising section of this magazine every month.—ED.

Air Dry Wrinkle for Coating Plastics

We would like to find a wrinkle finish for our plastic moldings—one which would require no baking, if possible, as they will not stand prolonged exposure in excess of 200° F.

It has been our belief that all wrinkle finishes required baking, but we were recently told of a non-baking finish sold in retail stores of which we know only that their trade mark is NAALD or something similar. This is not much of a clue for us but may be familiar to you.

Any information on the manufacturer of this or any other non-baking wrinkle finish you might be able to supply us will be greatly appreciated.—P.M.Co.

We are uncertain about any satisfactory and dependable air-drying wrinkle finish —especially any that might be suitable for use on plastics. For more specific information on this subject, we are pleased to refer you to New Wrinkle, Inc., 1771 Springfield St., Dayton 3, Ohio. If there is such a material available, we feel sure that New Wrinkle will know about it, as this concern licenses various manufacturers to make wrinkle finishes.—ED.

Finishing Cash Registers

Would you kindly send us a copy of the December 1947 issue of INDUSTRIAL FINISHING? We are interested in the article on finishing cash registers.—B.B.

Copy being sent.—ED.

Liked Prather's Article; Who Makes Padding Machine?

Mr. R. L. Prather: I have just read your article on cabinet finishing in the February issue of INDUSTRIAL FINISHING and wish to congratulate you on a very clear and concise job. Your article was one of the best on furniture finishing I have ever read.

I realize that, in an article of this type, you cannot make specific product recommendations, so I am writing to ask you a few additional facts to help me solve a problem akin to yours. First I would like to know the name of the manufacturer of the paste filler that you use that dries in 15 minutes.

I would also like to know who manufactures the machine to pad in the filler. In one paragraph you mentioned an overstain or glaze coat that you use. I am interested in the basic formulation of this item.

I hope you will be able to answer the questions I have asked because I am interested in stepping up production in our finishing department, and your method of finishing seems to pave the way to a solution.—W.S.Co.

The machine for padding in filler is a product of N. A. Strand & Co., 5001 N. Lincoln St., Chicago, Ill.

Regarding your other questions, we are referring you directly to Mr. Prather of Carrollton Furniture Mfg. Co., Carrollton, Ky.—ED.

Arkansas to Teach Furniture Sales People

The State Department of Vocational Education in Arkansas is cooperating with furniture stores in organizing and teaching adult courses for furniture sales people. As I visualize the program I would estimate about 25 classes will be held in the larger cities of this state, with an enrollment of about 500 people actually engaged in the selling and servicing of furniture and home appliances.

If your company has any teaching material or instructional charts which you feel could be used to advantage in such a program, I assure you your cooperation will be appreciated by this Department.—A. W. Ford, State Supervisor of Distributive Education, Little Rock.

Wrinkle Finishes

I recollect that either during the year 1946 or 1947 there appeared a series of articles in INDUSTRIAL FINISHING on Wrinkle Finishes. I am eager to secure these articles, and would like to know if it would be possible for you to check into this and send me reprints.—M.D.

An excellent feature article entitled, "Preparation, Spraying and Baking of Wrinkle Finishes" by G. A. Conrad, was published in Dec. 1946 issue, beginning on page 55. No reprints were made of the article, but we are sending you pages torn out of a mutilated copy of the magazine. —ED.

Many Concerns Equipped to Coat Coiled Aluminum

The inquiry, "Who Will Coat This Coiled Aluminum", as published in Feb. issue, pages 102 and 104, brought several replies from firms who are in position to do this and similar work. Quoting parts of a few:

After pre-treating steel, aluminum,

brass and copper clad steel with duridine and/or alodine, we enamel or rather coat coils in widths up to 28-in. with flexible coatings, such as alkyds or modified ureas, alkyd-vinyls or straight vinyls. The coils are slit to required widths after coating. We handle coils up to 6000-lbs.

Our present capacity is over 1,000,000-sq.ft. per month, but this capacity can be greatly increased in a very short time.

We are sending you a few sample pieces of our "Enamelstrip", showing the type of coating applied.—Enameled Metal Strip Corp., 20th & Walnut Sts., Allentown, Pa.

We operate an industrial finishing plant where we spray paint plastic radio cabinets and bake the enamel finish electrically. We are equipped to handle various jobs of any size, including finishes on wood, metal, etc.—John I. Nissly, 544 W. Mill St., Lancaster, Penna.

Synthetic Graining Roller

In your February issue, pages 30, 31 and 32, you published an article on "Production Graining" in which a new type of synthetic roller was discussed.

We are using the gelatin type rolls at present and find them to be unsatisfactory. Would you please advise us of a source of supply from which we could purchase some of these new type synthetic rubber rollers?—J. & S., Inc.

Yours is one of several similar inquiries that came in as a result of Mr. William B. Leil's article. Mr. Leil advises us that the synthetic graining rollers he has in mind can be obtained from Rapid Roller Co., 2558 S. Federal St., Chicago, Ill.—ED.

Can Supply Flexible Finish

Editor's Note: As a result of publication, in Feb. issue, page 104, of the inquiry "Flexible Finish Wanted", a number of concerns have written in to assure "D. D. Co.", that they can supply a flexible finish suitable for those woven paper baskets and hampers. We now have them listed on our reference card file.

R. H. Mueller and K. E. Rigtoft Join Allied Finishing Specialties

Recent additions to the Allied Finishing Specialties Co., 2601 Grand Ave., Chicago, Ill., include Roland H. Mueller, Chemist and Kenneth E. Rigtoft, Sales Representative.

Mr. Mueller received his degree of Engineering Science from the Armour Institute of Technology. He was formerly assistant chief chemist for a Chicago firm. His new duties will include the testing of raw materials and finished products, formulation of new and improved products and general technical advice on finishes and finishing problems.

Mr. Rigtoft has had several years experience as sales representative for two other manufacturers of finishing materials, covering midwest territory. Altogether, he has spent more than 17 years as a salesman of industrial coatings. He will represent the full Allied line which is one of the most complete in the midwest area. His territory will embrace the city of Chicago and nearby manufacturing centers.

Baltimore Paint Fire Exaggerated

Newspaper and radio accounts of a recent fire at the Baltimore Paint & Color Works exaggerated the damage.

The fire was principally confined to the company's varnish buildings; the paint manufacturing buildings are intact and production has been resumed. The alkyd plant suffered very little damage and will be in operation after a few minor repairs. The company's warehouses at Mt. Winans and Brunswick Street were not affected.

A large stock of finished goods is on hand and shipments are being made as promptly as before the fire. The company's officials report that the fire will not hamper its regular good service.

I. J. Barber Becomes V. P. of Fostoria Pressed Steel

I. J. Barber, Director of Engineering for the Fostoria Pressed Steel Corp., Fostoria, Ohio, has been promoted to a Vice President. Mr. Barber has been responsible for developing the design and technique for applying the infra-red equipment which Fostoria manufactures. He graduated from Penn State College in 1926 with a degree in Electrical Engineering.

I. J. Barber, Director of Engineering for Fostoria, has been made Vice President

Before joining the Fostoria organization in 1943, Mr. Barber was associated with electric utility companies in New York, Atlantic City, and several places in Ohio. He is reported to be one of the best informed sources on infra-red practices in this country, and is called upon to address many meetings on the subject.

Highlights on

HILO

Product Finishes

NU-SYNTOL

Low Temperatured, Quick Baking Synthetic White Enamel

Manufacturers seeking a low-heat, short-bake 100% Synthetic White Enamel for products that must stand a lot of hard wear and usage, will find the answer in Hilo NU-SYNTOL. This smooth-surface finish resists the action of alkalies, gasoline, mineral spirits, grease, liquor, cosmetics, hair tonic and fruit juices. It has good outside durability.

NU-SYNTOL may be applied by spraying or dipping. Baked at only 250° F. for 10 minutes, it provides a smooth, full, high-gloss white enamel finish that resembles porcelain.

The short bake of Hilo NU-SYNTOL allows maximum production and minimum unit cost for any oven capacity.

Send for a Trial Lot of NU-SYNTOL for test in your plant.

HILO

HILO VARNISH CORPORATION

42-60 Stewart Avenue, Brooklyn 6, N. Y.

2420 Washburne Ave., Chicago 8, Ill. • Park Sq. Bldg. Boston 16, Mass.

Clear Finish Over Decorations in Oil Color

Can you suggest any clear, durable finish that can be used over furniture which has been hand decorated in oil color? We would like a finish that has all the advantages of gloss lacquer, if possible, and none of the disadvantages of varnish.—HALL'S STUDIO, Santa Cruz, Calif.

Your letter was referred to us for consideration, and upon checking with our laboratory we find that we have two materials we can recommend for your use. One is a clear synthetic finish for application by either spray or brush. It is designed to be applied in medium coats at package consistency, although it will take as much as 15% reduction, if necessary, using a suitable reducer.

The other material is a clear lacquer-like finish that has been successfully used on furniture, where a thin tough coating is desired. It should be applied in a relatively thin, uniform coat, preferably by brush. Although it may be sprayed, this method is not advised. It should be used at package consistency, but will, if necessary, take slight thinning to as much as 5%, using naphtha, mineral spirits or turpentine.

Both materials will give you the gloss and durability required.—Arco Co. of California, Ltd.

The Editor of INDUSTRIAL FINISHING has forwarded us your inquiry regarding a "clear, durable finish coat" that can be used on furniture that has been hand decorated with oil colors.

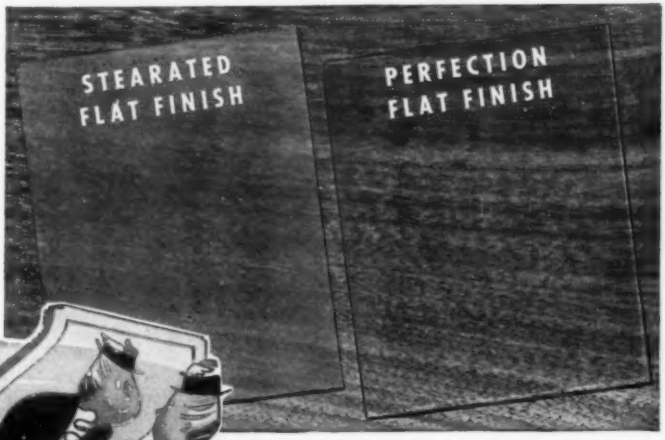
Your letter does not indicate what type of furniture you have in mind, what finishing schedule you are using, what wood or woods are involved, nor several other details that are important in making any recommendations as to the type of material to use.

We have an industrial representative who regularly is in your locality and we are arranging for him to call on you in the near future. After getting all of the information he can, either he or the writer will be glad to suggest the type of material or materials that will meet your requirements.—W. P. Fuller & Co.

Limed Oak With Black Background

It would be appreciated if you would advise me the best method of getting a limed oak finish, in oak veneer, with a black background instead of the conventional clear background, with the grain "limed" white.—L. L.

The finish you describe is most easily obtained by first spraying the oak veneer with gloss black lacquer. The thinnest coat that will give solid hiding should be used. Otherwise the lacquer may partly fill the pores and interfere with the filling operation. Allow plenty of time to dry and then sand lightly. Fill with a white filler, taking care to clean up well. Then



NO CLOUDINESS

★ ★ ★ ★

NO DISTORTION

Perfection Flat Finishes—varnish and lacquer types—are perfectly clear and free from distortion. That's because they do not contain any of the conventional stearates or flattening agents.

Perfection Flat Finishes are perfect for application by spraying. They are always free flowing . . . always produce a smooth, even surface without orange peel or piling up.

• For a lustrous rubbed effect, free from distortion or orange peel, try Perfection Flat Finishes. Write for free samples.

PERFECTION PAINT & COLOR COMPANY

715 E. Maryland St., Indianapolis 2, Indiana

Perfection SYNTHETIC FLAT FINISHES

WATER-PROOF LIQUOR-PROOF

seal and follow with a top coat of clear gloss or flat lacquer. When dry, rub smooth.

A similar effect can be obtained by first staining the wood with a black stain, wash coating, sanding, filling with white filler, and then applying the top coats. This method tends to bring out the grain of the wood a little more, but the filler has more tendency to smear and clean up with difficulty.—R. H. WAMPLER.

There are a number of ways to put on this finish. The cost of each will be different, and the toughness and durability of each will be different.

Probably the simplest way would be to spray the wood with a black lacquer for a background. Then fill with white filler and spray on one or two coats of clear lacquer finish for protection. The objection to this finish would be that any scratches, nicks or damaged places would reveal natural oak in an otherwise black finish. Also, a white filler would tend to appear grey over some black lacquers that are high in pigment, but not hard enough to withstand a white rubbing. Filler solvents tend to soften up the black coating, and the wood takes on a grey tone.

Another method would be to first stain the wood as black as possible with a water-soluble black dye or a N. G. R. black stain. Of the two, I believe the water-stained wood would give the blacker finish. Then spray on a light coat of clear lacquer and fill as soon as the lacquer is dry enough to wipe easily without "pull" or "drag" on the filler wiping cloth. To make this finish blacker, a small amount of black could be added to the clear lacquer coat before filling. Follow with a sealer coat, sand lightly, and spray on two coats of clear lacquer.

The finish, with no pigment surface coating, would wear well and retain all of the natural oak grain. The difficulty would be to get a stain black enough and penetrating enough to really appear black after filling. It may require a number of real wet saturating applications before the desired result is obtained.

A third, and probably the most practical from a standpoint of production and easy finishing, would be to spray a wet coat of N. G. R. black stain. Let dry. Spray on a thin coat of black lacquer enamel—not too wet or it would tend to fill in the natural pores of the wood. Let dry and fill with white filler. Apply a thin coat of lacquer sealer, scuff sand, and apply two coats of clear lacquer.

If for any reason the white filler should pick up some black from the lacquer enamel, a very thin coat of clear lacquer over the enamel will prevent this and will also make the filling operation easier.—E. HOGSTROM.

Finished Bleached Walnut Job Goes Bad

We would like to have you furnish us with an opinion from someone acquainted with bleaching walnut veneers. We have had several jobs made of walnut veneers which we have bleached, using the No. 1 and No. 2 solutions as supplied by a well known company. After bleaching, we finished with lacquer and rubbed in oil.

After the fixtures had been installed for about a year, they became blotchy. We are at a loss to know the cause of the condition or how to rectify same. Any information you can give us on this subject will be greatly appreciated.—K. Mfg. Co.

Several things might cause your trouble. Chemicals remaining on the

Production Proven

Research has always been regarded as the most important single function of the YARNALL organization.

The finest of modern laboratory equipment and a staff of highly trained specialists make it possible to constantly improve established YARNALL products and to develop many new scientifically correct finishes for special and exacting requirements.

Maybe you have a finishing problem—if so, tell us about it..? chances are we can help.

● INDUSTRIAL **YARNALL** FINISHES ●

● INDUSTRIAL **YARNALL** FINISHES ●

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YARNALL PAINT COMPANY

Industrial Division

PHILADELPHIA
PENNSYLVANIA

1885-1948

surface after bleaching can cause it. After bleaching, it is best to sponge off the surface with clean water, and dry before filling. Of course, the wood should be wash-coated and sanded before filling. Some finishers prefer to sponge off the bleached surface with a solution of 4-oz. of sodium bisulfite to a gallon of water, rather than to use clear water. I would consider either good practice.

On bleached work, it is a good plan to use the most alkali-fast stains and fillers available. You can test for this by staining or filling small wood blocks with different competitive materials. Then release a drop of 5% sodium hydroxide solution on each and note the ones which are most affected. This will aid you in your selection of these products.

Since you oil rub, it is possible that some rubbing oil gets into crevices and mouldings and connot be removed. In time this oil may creep along the grain of the wood and cause spotting. You can remove this danger by rubbing with water or an emulsion of one part of "soluble" rubbing oil in eight or nine parts of water.—ROLLIN H. WAMPLER.

It is recommended that after applying the second bleaching compound you allow the wood to dry a minimum of four hours, or overnight; then wash the surface with a freshly prepared solution of sodium bisulphite mixed in the proportion of ½-lb. to a gallon of water. This should dry overnight before you apply any sealer or wash coat. Do not mix more sodium bisulphite than necessary, as it can not be kept for later use.

The sealer or wash coat material should be of low solid content. Also, it may be advisable to run some test on your top coat lacquer material. This may be done by obtaining several test panels of metal, say 8x10-in. Clean them and finish them in pure white enamel. After the white enamel is thoroughly dry, spray top coats of lacquer, let dry, and rub. Then expose the coated panel to sunlight in a window. If there is a weatherometer available in some laboratory in or near your city, aging may be accomplished under controlled conditions in a comparatively short time.

You might also run tests on white enameled metal panels coated with your sealer or wash coat, to determine if discoloration develops after aging; then test the combined sealer and top coats on other panels. For comparison, omit rubbing on one or two panels. You might also conduct similar experiments on actual bleached walnut panels to determine the cause of fogging.—P. C. BARDIN.

Finishine School for Finishers Free Instruction

Mr. E. W. Hagadorn, President of Finishine Laboratories, Inc., 627 Tallman St., Syracuse 4, N. Y., has received many flattering testimonial letters from men who have completed his course of practical finishing at the Finishine School for Finishers.

At this school, men learn all about the latest methods, materials and tools used in finishing, refinishing and repair finishing new and antique furniture, pianos, radio cabinets, interior woodwork, etc.

Lupomatic Adds to Lab. Staff

Lupomatic Industries, Inc., 4501 Bullard Ave., New York 66, N. Y., announces the appointment of William Di Leo to the plastics section of its research, testing, and service laboratory. He is to exploit the many Lupomatic improved processes for tumbling plastic parts to a high, lustrous finish.

Mr. Di Leo has had many years of experience with plastic manufacturers and fabricators in creating more effective combinations of compounds and carriers to insure quality control of finishing operations through tumbling.

Mr. Di Leo's engagement marks a further expansion of Lupomatic Industries, Inc.'s policy of greater research in the science of tumbling equipment, compounds, and processes, and to materially improve the finishing techniques on plastics, metals, wood, and rubber parts.

More than a million Americans have boarded *The Freedom Train...*

and they saw...

- ★ The first book printed in America (The Bay Psalm Book, 1640)
- ★ Virginia's Ratification of the Bill of Rights, 1791.
- ★ First Account of the Battle of Lexington.
- ★ Paul Revere's Commission as Official Messenger.
- ★ Original orders of the Continental Congress increasing the powers of General Washington.
- ★ Alexander Hamilton's Original Manuscript draft of George Washington's Farewell Address, July, 1796.

...and two million more Americans will board it before October!

SINCE SEPTEMBER, 1947, when it left Philadelphia, The Freedom Train has visited over 100 American communities, and will visit 200 more by next fall. During winter months, it travels the South toward the Pacific, and in summer returns to the North.

The entire train is in white with red, white and blue stripes running the full length of the train from the Diesel locomotive in the front to the last car in the rear. By the time it completes its itinerary, the Freedom Train will be the only train in the history of railroading to visit every state in the country. Watch for its arrival in your community. See these priceless original documents guaranteeing your personal liberty. See how the Freedom Train gives meaning to the American heritage, vitality to its spirit, and inspires faith in the future.

★ ★ ★ ★ ★ ★ ★

KIRCO WHITE COVERS THE FREEDOM TRAIN

KIRCO whites include both lacquers and synthetic enamels, hi-bake, lo-bake or air dry, formulated to meet the most exacting requirements of fast production schedules.

★ ★ ★ ★ ★ ★ ★

All exterior and interior surfaces of the Freedom Train are finished with KIRCO lacquers, synthetics and adhesives.

KIRCO MODERN COATINGS

Kirker CHEMICAL COMPANY

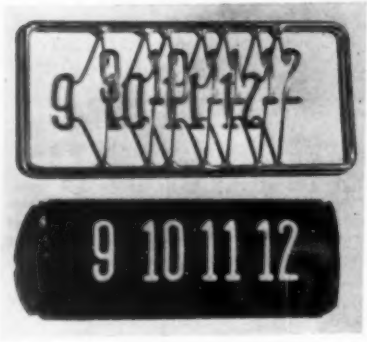
ONE EAST ELEVENTH STREET • PATERSON 4, NEW JERSEY

Materials Supplies Equipment

Form Fitting Spray Masks for Intricate Work

Those bright, colorful, decorative emblems of intricate design, beautiful nameplates, hubcaps, horn buttons, dials and utility markings for household appliances, such as are seen on leading nationally known products, can be made rapidly, easily and economically by all manufacturers.

The Conforming Matrix Corp., 31 Toledo Factories Bldg., Toledo 2, Ohio, announces a new form-fitting electroformed metal masking template that



Above is mask for masking white numbers shown below, so that the surfaces around the numbers can be spray painted.

Form-fitting mask for a special job.

makes the spray painting of sunken or raised areas of metal or plastic parts a relatively simple matter. Two patents are held on the development.

These masks neither deteriorate nor lose their form during cleaning. Bright, durable enamels, one color right after another, can frequently be wet painted before baking, on many convex, concave or irregularly shaped 3-dimensional parts with these accurate masks. The difficult and costly procedure of forming masks by hand and the necessity of cleaning after painting is eliminated. Clean-cut, sharply defined letters and effects on even small emblems of most intricate design are obtained. A thin strong lip of metal, which fits into the edge of the debossed areas that are to receive paint, traps the paint, eliminates fogging at the edge of the paint line, and avoids after-wiping or buffing off of the overspray.

There are three general classifications of form-fitting masks—the lip

The

VARNISH PRODUCTS COMPANY

Makers of . . .

CEL-U-LAK

LACQUERS and ENAMELS

FORM-A-ROC

ALKYD-AMINE ENAMELS

Also . . .

Bronzing vehicles, adhesives and other specialties for the industrial finishing of wood, metal, ceramics and plastics.

5204 HARVARD AVENUE, CLEVELAND, OHIO

Yes, PREP PRODUCTS are your best safeguard . . . They have proved their dependability over years of use. They have been subjected to the most rigid tests . . . Their merit has been conclusively demonstrated for the proper treatment of metal before painting. Prep Products remove rust effectively, quickly . . . They are your dependable protection against paint failure . . . Write for Bulletin 48-60.

NEILSON CHEMICAL CO.

2682 Tecumseh Rd. Windsor, Ont. | **6562 Benson St., Detroit 7, Mich.** | 3411 Union Pacific Ave. Los Angeles 23, Calif.

type, the plug type, and the block cut-out plane surface mask.

By means of special arched bridging, the "loose" inside of letters and numerals, such as "O" and "6", are held in position, to effect perfect characters without the use of the objectionable "ties" necessary with common stencils.

Plug masks must always be used on plastics where side lighting is employed to illuminate clear depressed characters such as speedometer and radio dials. Plug masks are also applicable to plastics molded in solid color but to be decorated with additional colors on the face surface.

The great majority of parts can be painted by laying them on a turntable and placing the mask on same. Frequently, the mask is mounted rigidly in the spray booth and the piece is brought to the mask. However, where parts have a tendency to warp or where their light weight and size allows distortion from polishing, clamping fixtures are suggested for best results. Masks are also designed for attaching to parts that move on a monorail or merry-go-'round, for either manual or fully automatic spraying.

Cleans and Deodorizes in One Operation

A new chemical material possessing the dual ability to clean and deodorize in a single, simultaneous operation is announced by Oakite Products, Inc., 32F Thames St., New York 6, N. Y.

This new material, known as Oakite Di-Sanite, is a fine, free-flowing powder, mildly alkaline, that is readily soluble in hot or cold water. It possesses pronounced wetting, penetrating and detergent ability, as well as deodorizing action. Material is safe to use, free from abrasives and harmful ingredients, and its solutions may easily be applied on surfaces by simple sponging, wiping or mopping.

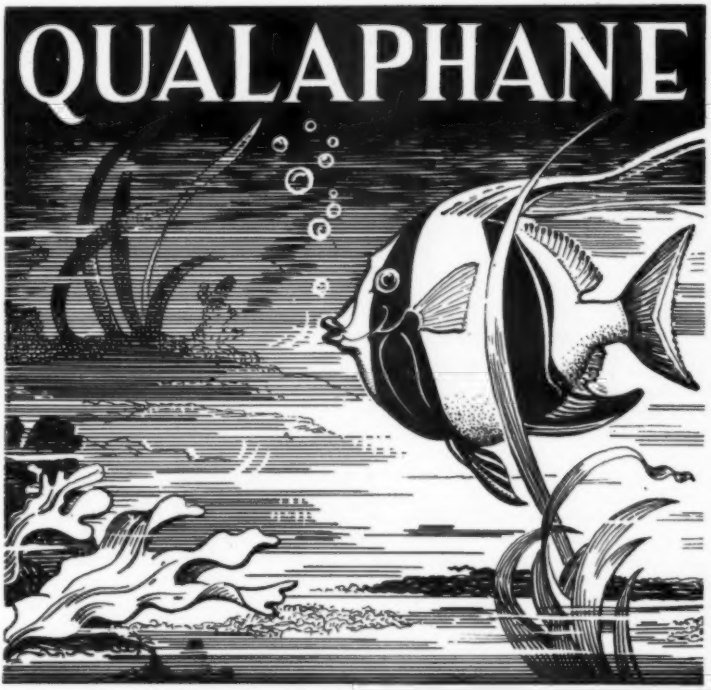
Suitable for use in practically every industry, Oakite Di-Sanite is highly effective in destroying objectionable odors at the source in all kinds of factories; and for cleaning and removing odors from interiors of public conveyances, such as railroad coaches, street cars, buses, etc.

Measures Air Velocity

A new miniature Alnor Velometer Jr.—recently announced by Illinois Testing Laboratories, Inc., 420 N. LaSalle St., Chicago 10, Ill.—answers the need for a portable, low-priced, direct reading instrument, giving instantaneous and precise measurement of air velocities in unrestricted areas.

This palm-sized Velometer Jr., designed for scientific application in the electrical manufacturing and engineering fields, does not require the use of jet attachments. Completely self-contained, the Velometer Jr.—4-in. high, 3-in. wide, 1½-in deep.—weighs only 8-oz. and has single or double velocity range scales.

Alnor Velometer Jr. is calibrated to provide direct reading of air velocity



Clear as Water

QUALAPHANE reflects the natural color and beauty of nature. It will not discolor the most delicate shades of bleached or natural woods and retains the hard gloss finish with unequalled flexibility and permanence. QUALAPHANE is highly resistant to impact, abrasion, water and 100 proof alcohol. QUALAPHANE penetrates and adheres to the wood with remarkable tenacity, has exceptional flowing properties and can be readily brushed or sprayed. Write for information and quotations.

Manufactured by the makers of

QUALASOLE and QUALAVITE

QUALATONE PRODUCTS INCORPORATED

21 GAY STREET **NEW YORK 14, N. Y.**

in either feet per minute or miles per hour without timing, calculations or reference to tables and charts. Movement is double-pivoted, double-jeweled for increased accuracy. The air-actuated pointer vane and sensitive controlling hair springs are protected by a sturdy model bakelite case.

A genuine leather, nylon-stitched carrying case with brass fittings offers added protection and convenience when handling the Velometer Jr.

Black Arrow Line of Spray Equipment Expanded

The Black Manufacturing Co., Inc., Baltimore, Md., announces a number of major additions to its line of Black Arrow "Hollow Air" paint spray equipment.

New products include all types and sizes of paint spray booths, exhaust systems, electric motors, lights and turntables, as well as a complete line of accessories headed by automatic dampers, roof canopies, exhaust ducts, clean-out doors and others.

The new Black Arrow line of paint spray booths includes bench and floor type (dry) booths, "drive-in" booths, water-wash booths, and specially constructed extra large booths for painting trucks, trailers and busses.

Exhaust systems range from 1/6-hp., with 12-in. diameter fans, to 5-hp. with 42-in. diameter fans. Electric motors and lights are explosion proof. A special feature of the standard "drive-in" spray booth is its unusual width of 14-ft., which gives the spray painter added working room.

These new additions to the Black Arrow Line of paint spray equipment are now being offered to all users through Black Arrow jobbers.

Silicone Finish Protects Metal Exposed to 1000° F.

For many years, formulators of paints have been working to supply protective coatings that will withstand high temperatures and long exposure to outdoor weathering. Finishes form-

The Black Mfg. Co.'s Black Arrow drive-in spray booth has plenty of working room.

Be Fresh . . . Stay Fresh!

on

PAINT SPRAY JOBS

wear a DUPOR Chemical Cartridge Respirator No. 10

Ideal for paint, lacquer, enamel vapors, fumes, gases, etc. Face mask gives air-tight fit, controlled breathing, panorama vision with no blind spots. Cartridges are of colored plastic for easy identification! When ordering, specify the WHITE for Code A; BLACK, Code B; YELLOW, Code AB.

Sample sent
$4.50 pp

H. S. COVER
South Bend, Ind.

COVER'S
GAS-TIGHT
FOG-PROOF
GOGGLES
$1.65

For fine decorative finishes use —

MEARLMAID
PEARL ESSENCE

THE MEARL CORPORATION

153 WAVERLY PLACE **NEW YORK, N. Y.**

"World's Largest Producer of Pearl Essence"

ulated with Dow Corning Silicone Resins have recently been introduced to supply the industrial demand for coatings which protect metals at temperatures from 500° to 1000° F.

A modified silicone finish pigmented with aluminum is used by one concern to protect two hot metal surfaces in its space heaters. In one area, temperatures frequently reach 1000° F. In the other area, the average mean temperature is about 500° F.

Even at such temperatures, the modified silicone aluminum coating made by Midland Industrial Finishes Co., Waukegan, Ill., maintains a continuous film which protects these metal surfaces from oxidation and scaling. Aluminum pigmented coatings made from the better organic resins disintegrate after a few weeks of such service.

Skillful modification of the silicone resins has made it possible to produce this exceptional heat-stable aluminum finish at a cost competitive with that of the better grades of aluminum paint made with organic resins. This new protective coating can be used therefore to make hot metal surfaces last much longer at no appreciable increase in cost.

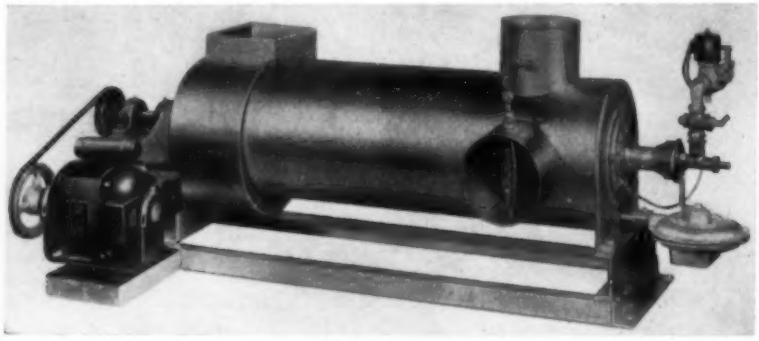
New Industrial Heater Unit for Ovens

The Midget Utility Air Heater, with improved design features, is now available as a complete package unit. In addition to the heater the "package" includes fan, motor, drive, safety devices and temperature controller.

It is ideal for heating drying rooms and small industrial ovens for baking lacquers and enamels on metal ware, baking varnish on coils and armatures, and the drying of paint.

With a heating capacity of 125,000-Btu. per hour, the heater is suitable for heat up to 350° F. The brick-lined combustion chamber affords complete combustion of gas. The burner has good turn-down range, allowing proper temperature control. The fan capacity is 1,000-cu.ft. of air per minute. The hot air can be recirculated for greater fuel economy. Both the burner output and air volume can be regulated for progressive temperature control and air circulation.

The midget heater is low in cost, easy to install and simple to operate. Temperature controls of either the indicating or non-indicating type are furnished as desired. The safety devices are designed to shut off the gas



A gas heater, "package" for heating drying rooms and ovens for drying or baking paints.

WABASH PRODUCTS COMPANY

16TH AND HULMAN STREETS

TERRE HAUTE, INDIANA

SIMAX

THE FINISH THAT LASTS

Industrial Finishes

Lacquers Enamels Sealers

Stains Varnishes Thinners

Synthetics, all types

DRUM TUMBLING MACHINE

for Efficient Mixing of Materials in Suppliers' Drums

- No solvent loss
- No time loss
- Material ready when needed
- No fire hazard
- Nothing to clean

- Supplied in sizes from 5 to 10 gallons; any load, any speed.

Send For Literature!

THE VOL-U-METER CO., P. O. Box 54G, Buffalo 16, N.Y.

STRATHMORE PRODUCTS

SPECIALISTS
in fine
INDUSTRIAL
FINISHES

MANUFACTURING
a COMPLETE
LINE of INDUSTRIAL
and Automotive Finishes
for many of the
Country's finest firms

LET US IMPROVE
Your Product's Finish

Send us your
most difficult
problem. Our laboratory staff is second to none.

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Strathmore
PRODUCTS INC.
1970 W. Fayette St.
Syracuse 4, New York

supply in case of flame, power or fan failure. Further information on this and larger size heaters may be obtained from Mr. W. A. Pyhrr, Engineer, Gas Appliance Service, Inc., 1211 Webster Ave., Chicago 14, Ill.

Chrome Aluminum Enamel

The Norfolk Paint & Varnish Co., Quincy 71, Mass., announces the production of a new 10-minute bake chrome-aluminum enamel. Its unusual brilliance and extremely tough adhesiveness combine to fill industry's need for a fine decorative and protective finish. Chrome-aluminum enamel achieves the effect of polished chromium with all of the high reflective quality of silver. Because of its exceptional flowing and leafing properties, it assures one-coat coverage of most surfaces.

Carbon Dioxide Fire Extinguishing System

American-LaFrance-Foamite of Elmira, N. Y., manufacturer of fire-fighting apparatus, announces a completely new carbon dioxide fire extinguishing system for protecting Class "B" and "C" risks requiring localized or total flooding, and for rotating electrical units requiring a sustained discharge of carbon dioxide.

This new system, according to the manufacturer, automatically shuts off power units, closes windows and doors when fire strikes—but only after first sounding an alarm to permit employees exit from the fire area. Then the system discharges its fire-killing carbon dioxide.

It is a flexible unit, readily adaptable to all needs a fire risk requires. It can be easily installed and serviced. Additional cylinders can be quickly added should a risk be increased later to require added protection.

Fountain Brush for Marking

A new automatic valve controlled pocket fountain brush for marking, drawing and writing on any surface —producing a very fine or broad line

Marks on any kind of surface.

by use of special adapter and four interchangeable hard felt nibs is announced by Cushman and Denison Mfg. Co., 135 W. 23rd St., New York 11, N. Y.

This new instrument permits fine markings on small packages and labels; excellent for pricing and marking on any surface as cellophane, metal foil, wax surfaces and fabrics, with choice of eight transparent instant drying colored inks.

Materials Handling Service

A new service designed to simplify and reduce materials handling expense has been inaugurated with the formation of Garrick Industries, Inc., 2893 S. Robertson Boulevard, Los Angeles 34, Calif.

Headed by R. Eric Friden, president, and R. C. Garrigues, vice-president, Garrick Industries has a department of well-qualified experts to assist the manufacturer in planning and selecting materials handling equipment. When necessary, special equipment will be designed by Garrick engineers to perform the job efficiently and economically. Every step of materials handling can be blueprinted for the manufacturer — from plant layout through delivery of recommended machinery.

USE
SPRA-KLEEN
Reg. U. S. Pat. Off.
FOR *Efficient*
SPRAY BOOTH
Operation
SPRA-KLEEN keeps nozzles, circulating lines and reservoirs free from over-spray sludge.
SPRA-KLEEN is EASY to use . . . no mixing required.
Get the facts today!
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Industrial Cleaning Compounds
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TABER ABRASER WEAR TESTS
3 new, improved ACCESSORIES Now Available
● Manual describing how to test wear resistance of all types of surfaces as well as new 12-page Accessory Bulletin giving complete description and use of all accessories, on request.
Send for your copy today!
TABER INSTRUMENT CORP.
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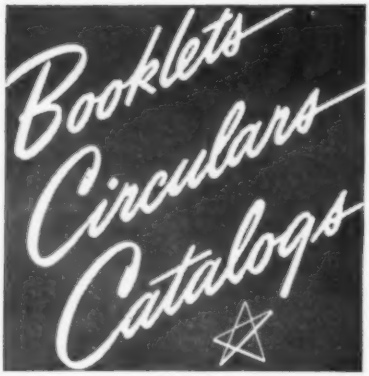
The Taber Test *Proves* What Wears Best!



Insulated Infra-Red Units

An illustrated circular released by The Miskella Infra-Red Co., E. 73rd and Grand Ave., Cleveland 4, Ohio, shows interesting pictures and reveals valuable information about some of the company's insulated infra-red units and assembled super-heat ovens for baking protective and decorative coatings on a variety of products.

Production Costs Cut by Improved Lighting

An illustrated folder and a small booklet about improved balanced lighting for all industrial establishments, have been prepared for distribution by The Fostoria Pressed Steel Corp.. Fostoria, Ohio. Contents of these pieces reveal valuable information for executives and engineers in industry.

New Air Recovery Handbook

W. B. Connor Engineering Corp., 114 E. 32nd St., New York 16, N. Y., air conditioning accessory manufacturer, has published an engineering and application data book on its Type "H" Dorex Air-Recovery equipment which is used in the "recovery" or conversion of stale, vitiated, or contaminated air to its original freshness, either in order to conserve it for re-use or to correct exhaust and intake odor nuisances.

Doxer Type "H" equipment consists essentially of hollow-walled cylindrical canisters containing specially processed activated carbon and a manifold or supporting plate in which the canisters are secured. It can be installed in a variety of arrangements in ducts or casings to suit different conditions and requirements. Typical assembly arrangements, dimension prints, framing details, capacity and resistance curves are included in the handbook.

Buffing Cloth Samples

A catalog page, showing ten samples of cloth used for making buffs has just been issued by the Divine Brothers Co., 200 Seward Ave., Utica 1, N. Y. These sheets have the actual material glued on the page in such a manner that it can be readily examined. Beside each swatch is a brief description of the recommended use for that quality. Readers are invited to write for this sheet, asking for "Buff Cloth Bulletin—FDB-3."

Glass Coating Prevents Glare

The Skybryte Co., 3125 Perkins Ave., Cleveland, Ohio, has just released a full color illustrated folder on its product, Skyco No-Glare—a light blue translucent material that is brushed or sprayed on windows and skylights. The coating admits 94% light and reduces heat 15%. Harsh glare is turned to soft diffusion. The coating of No-Glare stays on until removed with hot water and a stiff brush and costs less than one-half cent per square foot of glass.

Adhesives in Industry; Free Book

Research help for industrial customers, in choosing the right adhesives, sealers and coatings, is offered in a new brochure by Minnesota Mining & Mfg. Co., 901 Fauquier Ave., St. Paul 6, Minn.

Entitled, "3M Adhesives in Industry", the 28-nage brochure contains 40 pictures, cites 18 case histories, and lists 26 of the more than 1000 formulas offered by the company's adhesives and coatings division in Detroit.

Pictured are bonding operations such as plywood-to-metal and vinyl-sheeting-to-wood; sealing operations involving aircraft cabins, auto bodies, and boat decks; and protective and anti-corrosion coatings for metal.

Cleaning Aluminum Parts for Painting

An efficient method of preparing aluminum for painting, of protecting finished work against corrosion, and of obtaining smooth. lustrous finishes, is fully discussed in a special feature article appearing in a recent issue of Oakite News Service, house publication of Oakite Products, Inc., 132F Thames St., New York 6, N. Y. The article describes the production procedures employed in a large Eastern plant manufacturing automatic phonographs, where oils, grease, identification marks, fingermarks and oxides must be removed from aluminum parts incorporated in these units before painting.

More Durability with Lacquer!

For outdoor as well as indoor service, *Lacquer Lasts!* Resistance to abrasion, sunlight, moisture, greases, and temperature changes has been demonstrated time and time again. *You can do it better with lacquer!*

HERCULES POWDER COMPANY
INCORPORATED
928 Market Street, Wilmington 99, Delaware

CLS-2

Use

Crystal

TACK RAG

BEFORE YOU SPRAY

Will Not Generate Heat

Nor Smoke When Stored

in a Warm Place

Always Soft and "Tacky"

Speed Up Your FINISHING PRODUCTION LINE with this Soft Tacky Cloth

BCP LOCKY WIPERS

Available in GROSS LOTS thru PAINT DEALERS or from the Processor

Industrial Size 18 x 36

Spontaneous Combustion Proof

Exclusively Processed by

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MIRACLE

5 Gallon BLUE BOY Model

PAINT REJUVENATOR

Restores Paints, Lacquers, Enamel Products and Pigment Primers, to original consistency in 3 to 10 minutes without opening the can. Available for Round or Square 5-gallon cans. Explosion proof electrical equipment if desired. Also other units from ¼-pint to 50-gallon drum capacity available. Originators of Paint Rejuvenating Equipment—ten years—thousands of satisfied users.

Miracle Paint Rejuvenator Co.

127 E. 9TH STREET ST. PAUL 1, MINN.

Bulletin on Buffing Machine

Divine Brothers Co., 200 Seward Ave., Utica 1, N. Y., manufacturers of buffing and polishing wheels, machinery and supplies, has recently issued a new bulletin and price list covering a new, improved "Flexspeed" variable-speed machine for buffing and polishing.

Buffing and polishing wheels operate to best advantage at a pre-determined "Surface-fee-per-minute", so this new Flexspeed gives the user the added economy of being able to use the correct wheel speed—even on wheels which have been worn down from their original diameter. In other words, the speed adjustment allows for compensation of loss of diameter of the buff or polishing wheel without sacrifice of the efficiency of the correct surface speed.

New Book on Infra-Red Industrial Applications

A new book (published in 1947, entitled, "Industrial Applications of Infrared", contains the latest information and many illustrations in its 200 pages, size 6x9-in. Author of the book is James D. Hall, Advisory Engineer with the Lamp Division of Westinghouse Electric Corp. It is written from a practical point of view to quickly show factory executives and engineers how to use infra-red radiation to achieve effective and economical results in the curing of surface coatings. The book is substantially and attractively bound in dark green stiff covers, and lettered in gold. Copies can be obtained from INDUSTRIAL FINISHING; price $3.50.

Metal Cleaning Solvents Booklet Free

The DuBois Co., Cincinnati 3, Ohio, announces the reprinting and supplementing of its booklet on solvents, which was first released several months ago. The initial demand was so great that it is being offered again with additional data.

This booklet contains information on flash points, boiling ranges, chemical constitution, toxicity, trade names, etc., on those solvents most frequently used in metal cleaning. It makes possible easy selection of the correct solvent for a particular job; discusses the use of emulsifiable solvents and the fast growing popularity of emulsion cleaning, and the effect of the various solvent groups on particular soils.

Flash points are also given on each of these solvents mixed with Actusol, an emulsifiable oil detergent manufactured by The DuBois Co. Actusol raises the flash of combustible solvents and provides protection for the skin. Actusol is an emulsifiable oil detergent used to augment the solvent power, to emulsify insoluble soils, and to provide water rinsability in solvent cleaning operations.

CLINTON FINISHES put YOUR PRODUCT on a pedestal

A Quality Finish
Adds to the
Prestige of *YOUR*
PRODUCT—Gives it
Better Acceptance—
More Salability

The Sign of
CLINCO
Highest Quality

The CLINTON COMPANY

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Industrial FINISHING Editorial

Clean Up Everything—for Better Efficiency, Safety

Everyone feels better and works more efficiently in clean suroundings. Isn't there a saying to the effect that "clean is a good color"? A clean plant is not only a good advertisement, it is an asset.

Most people are concious of cleanliness. Most people intend to clean up the plant in general, and the finishing room in particular. But with production running high and time short, the matter of cleaning up is put off until often neglecting to do it becomes a habit. Consequently not only the plant but the equipment becomes dirtier and dirtier. Efficiency is affected, supply lines become clogged, spray guns fail to perform satisfactorily, causing delays and loss in production.

It is advisable to take off some week end to thoroughly clean up the place from end to end, get rid of accumulated, unused and obsolete stock and trash. Clean all equipment. In order to obtain continuous, efficient and uninterrupted production, it is advisable to place a container of solvent just inside the spray booth, so that at least once every hour the operator can clean the nozzle of his spray gun with a long-handled, bristle brush dipped in the solvent.

This cleaning job only requires a minute or two, and even when spraying parts on a conveyor line, sufficient cleaning time may be found during gaps on the line, or when the conveyor is temporarily stopped. Even in the most efficiently run plants there are gaps and pauses, and those few minutes cannot be used to better advantage than by keeping the spray gun nozzle clean. Of course, it is understood that at the end of each day all spray equipment is to be thoroughy cleaned with solvent, so that it will be in good condition for work the next day.

Paints Heated for Application

Today there is a definite trend toward the use of hot paints. What makes this trend more significant is that it is not limited to operators of finishing rooms, but to suppliers of finish materials as well. Perhaps this is a good sign. With the entire industry behind it, something will be done about it.

Some years ago hot lacquer was promoted. Some finishers accepted it; more did not. Today some finishers still use hot lacquer; more do not. But today the use of hot synthetics has progressed beyond the talking stage. More and more finishers have come to realize that with hot paint, viscosity can be better controlled, more solids can be applied in less time, and with fewer strokes of the gun.

Less solvents are required, therefore there are less solvents to be evaporated in the bake oven. It follows that the baking time may be shortened somewhat. Hot paint also flows out and spreads more easily and more readily than cold paint. This is especially true if the surface on which the material is sprayed is heated to about the same temperature as the paint. Whether or not the

product is heated, application of hot paint pays off.

The savings in cost through the use of less solvents is negligible, for it must be borne in mind that solvents cost much less than synthetics. The less solvents added, the higher is the price of the material being applied. By the same token, any loss through overspray represents a greater loss. On the other hand the paint to which less solvents are added has a higher viscosity—which means more solids spread on the surface with fewer passes by the spray gun. This results in a saving of time.

Tool Up for Quality; Competition Is Here

The time when so many industries could permit the existence of conditions which make for less production, higher cost, numerous rejects, indifferent workmanship, and delayed deliveries—the time for this sort of thing is just about gone. The buying public is becoming more critical and more inclined to wait and "shop around". There is more evidence of salesmanship, competition, improved and better designed merchandise, and careful advertising definitely designed to attract inquiries and sell something.

In factories an investigation and a cleaning out of sources of waste, negligence, indifference and excessive costs must take place. Efforts must be directed toward providing steady quality production for every work station along the line, with a minimum of handling or lost motion between stations. If at every work station the task at hand is done perfectly (time and facilities being provided for doing it that way) and if between stations no harm comes to the work in process, there should be no rejects and no occasion for any repair-

REMOVE ANY FINISH

without risk of

FIRE!

Where fire prevention and a quick, clean removing job are "musts", SAF-TE is the painter's first choice. Approved by U. S. Dept. of Commerce as "ship stores", SAF-TE *will not burn!* Reduces the finish to a soft, buttery sludge that comes off readily. Leaves no waxy residue; therefore requires no after-wash.

During 30 years of serving leading industrial firms, we have developed removers to meet every need. Let us help you with *your* removing problem. Fill in coupon below.

SAF-TE

Non-Burning Remover

WILSON-IMPERIAL CO.
115 Chestnut Street, Newark, N. J.

WILSON-IMPERIAL CO., Dept. E-48,
115 Chestnut St., Newark 5, N. J.

We are interested in stripping paint from

_____

Type of Finish_____

Name_____

Company_____

Street_____

City_____State_____

The DUST-ALL
TACK RAG
Collects Dust and Dirt Too!

IT picks up the dust, dirt and specks that spoil paint jobs. It assures a pride-arousing finish job and a profitable one. Get them from your dealer or write us.

The Dust-All Tack Rag comes in the characteristic Red Checkered Bag.

HARDING
MANUFACTURING CO.
10606 Gratiot Ave., Detroit 13, Mich.

ing, patching or fixing up at the end of the production line.

Assuming that carefully selected and properly placed equipment and workers are eventually obtained for such an ideal arrangement, constant vigilance must be exercised to make sure that every mechanical unit and individual worker continues to perform efficiently. Equipment requires periodic maintenance, cleaning, inspection and occasional repairs; sometimes replacement. Employees need attention too, if they are to remain efficient, loyal, happy and devoted to their work.

A. J. Capalbo Joins Interchemical Flexible Plastic Coatings

Albert J. Capalbo, well known plastic coatings technician, has joined the Flexible Plastic Coatings Department of Interchemical Corporation's Finishes Division, according to a recent announcement by Chester M. Robbins, head of the department.

Mr. Capalbo, who received his technical training in chemistry at the Newark Technical School, Newark, N. J., brings to Interchemical a background of more than 12 years in the manufacturing and printing of flexible plastic coatings. He recently completed two years as chief chemist for the Plasticote Fabrics Corp. of Passaic, N. J., formerly manufacturers of coatings for textiles and specialists in vinyls.

A. J. Capalbo, plastic coatings technician joins F.P.C. Dept. of Interchemical.

In his work with the Flexible Plastic Coatings Department of Interchemical Corporation's Finishes Division, Mr. Capalbo will serve in both a sales and technical service capacity with headquarters in Elizabeth, N. J.

VITAL TOOL FOR *Management!*

Use it to
SPREAD
the national debt!

WITH MANAGEMENT BACKING,
PAYROLL SAVINGS PLAN CAN HELP BUSINESS AND NATION

In 19,000 companies, "Payroll Savings" has made employees more contented in their jobs—has cut absenteeism—even reduced accidents! It builds financial security for each participant. (U. S. Savings Bonds pay $4 at maturity for every $3 invested.) And it helps business generally:

SPREADING THE NATIONAL DEBT HELPS SECURE YOUR FUTURE

Your business is closely dependent upon the national economy, which will be strengthened by distribution of the public debt as widely as possible. How that works is clearly, briefly described in the free brochure shown below.

EXECUTIVE BACKING IS VITAL

Despite the many benefits of "Payroll Savings," its success in your company is liable to dwindle unless a responsible executive keeps it *advertised*. Make sure the Plan is vigorously maintained! Your U. S. Treasury's State Director, Savings Bonds Division will gladly help.

Free brochure *expresses views of two business leaders. Be sure to get your copy from the State Director... today!*

The Treasury Department acknowledges with appreciation the publication of this message by

INDUSTRIAL FINISHING

This is an official U. S. Treasury advertisement prepared under the auspices of the Treasury Department and the Advertising Council

SAFEGUARD YOUR SPRAY BOOTHS

Layers of inflammable paint come off more quickly if you have applied Wyandotte Spray Booth Coating first. Only a thin coating makes cleaning easier, speedier, more economical.

And you can reduce your floor-cleaning costs with Wyandotte F-100*. Even heavy soil stands no chance against this remarkable compound.

For more information about these Wyandotte Products, write the Wyandotte Chemicals Corporation, Wyandotte, Michigan.

*Registered trade-mark

UNISOL PAINT STRIPPER

A New Development for Industrial Paint Stripping

- Non Inflammable
- Used Cold
- Requires No Rinse
- Works Rapidly on All Types of Finishes
- Will Not React or Affect Any Metal, Ferrous or Non-Ferrous
- Non-Injurious to Hands or Clothing
- Unisol Liquid—For Dipping, Dries Rapidly With No After Film to Interfere With Repainting

Samples and further information supplied on request.

Chemco Products Co.
Incorporated
1059 East 76th Street
Chicago 19, Illinois

Pyrene Company Recalls 500,000 Extinguishers

Last month the Pyrene Mfg. Co., Newark 8, N. J., called in more than half a million of its hand fire extinguishers. An elusive and persistent corrosive in the extinguisher fluid—supplied to Pyrene by an outside manufacturer—has severely damaged some of the recalled extinguishers and would probably affect others in time, explained the company.

Corrosion affects certain internal parts so the extinguishers cannot be operated. Most exacting of company tests and extensive research by its consultants gave no clue to the destructive element. In what was a stirring detective chase down an unsuspected side street of chemistry, the agent was finally discovered and the trouble remedied.

All extinguishers recalled are of the vaporizing liquid pump type. They are quart and 1½-quart sizes, with the exception of a small number of pint size.

H. C. Hinig Is Promoted by Sherwin-Williams

Howard C. Hinig has been promoted to assistant manager of industrial and transportation sales for Sherwin-Williams Co. of California, it is announced by C. M. Lemperly, Sherwin-Williams' vice president and director of sales.

Hinig joined Sherwin-Williams in January, 1936 as a clerk in the traffic department and two years later was transferred to transportation sales. He was in the transportation sales department until his recent appointment except for the period July, 1943 to April, 1947 when he was a first lieutenant with the U. S. Army Finance Department.

Howard C. Hinig, assistant manager of industrial and transportation sales for The Sherwin-Williams Co. of California.

In his new position Hinig will have charge of coordinating the efforts of the various S-W factory points, salesmen and the company's Cleveland headquarters with transportation and industrial operations on the West Coast. He will be stationed at Oakland, California.

£

STERLING

Complete Finishing Systems

Primers...Thinners
Clear and Synthetic Enamels
Ready-mixed Metallic Lacquers

3508 Market St. **STERLING LACQUER MFG. CO.** St. Louis 3, Mo.

BOOKS On Finishing Available

"MODERN ORGANIC FINISHES—Their Application to Industrial Products" (452 pages) New	$8.50
"CHEMICAL FORMULARY" (Vol. VII)	7.00
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Modernization Caravan to Tour Country

Models of the new "open front" store prototypes of the visual, scientifically lighted and functionally color styled commercial shops scheduled for the American shopping center of tomorrow, have started a nation-wide exhibition tour of the United States.

Developed by Pittsburgh Plate Glass Co.'s department of architecural design, the model stores are constructed to ½-scale with the displays being executed in minute detail. According to Elmer A. Lundberg, director of architectural design for the firm, the models shown can be used as basic designs by architects for any locality in the U.S.A.

The models mounted in specially constructed trailers are on the first leg of a tour which will cover 250,000 miles during the next three years. Pittsburgh Plate officials revealed that preliminary plans are for the "Store Modernization Caravan" to show in 540 cities with populations over 40,000 persons. A similar caravan, featuring store fronts only, toured the country from 1936 to 1939.

Random Comment on the Industrial Scene

(Continued from page 8)

rail" containers for package shipments. These units, recently designed and developed by Reynolds Metals Co., are transported between shipper's loading docks and freight yards on special trailer frames and are shifted mechanically to standard flat cars by means of built-in hydraulic lifts and a winch-and-cable arrangement.

(Continued on page 136)

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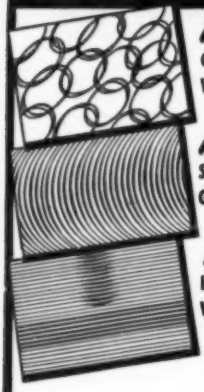

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* * *

Homes for Better Living. Expanding use of glass for indoor-outdoor living was adjudged the outstanding new development in postwar housing by two out of three of the nation's leading home builders who participated in a poll conducted at the 1948 National Association of Home Builders exposition.

The builders, answering a questionnaire covering current housing trends, stated that greater mechanization of the home is the second most important development, and radiant panel heating is third. Use of new alloys and plastics rates fourth, in the opinion of several hundred of the 6000 attending the meeting.

The majority agreed that the 6-room house was leading the construction parade today, winning over the 5-roomer by a slight margin.

* * *

Schooling An Industry. Heretofore many individual companies have provided schools for salesmen and courses of instruction for their own employees, but due credit should be given the National Machine Tool Builders Association for its work in providing training courses for an entire industry.

T. Berna, general manager of the association declares that it is not enough for sales engineers in the industry to be able merely to know their

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product and how to operate the machines they are selling. They must also know how their machines save materials, prevent rejects, cut production costs, increase mass production, provide superior quality control, obtain superior surface finishes and contribute to more competitive manufacturing of other lines. This program is designed to establish a more extensive common ground between the machine tool builder and the user.

Other industries would do well to follow the example of the Toolmakers. This is one case where nobody loses. Money invested in education invariably becomes an asset.

* * *

Automatic Vendors. There seems to be a definite trend toward extending "The Automat". Automatic vendors of food have long been a novelty to visitors in our big cities, and a means of a quick pick-up for the native.

Now vending machine manufacturers plan to extend the field to groceries, cooked foods, certain items of clothing and housewares. It is said that electronics, coupled with the progress made in electrical manufacture, is responsible for making wider use of the coin machine possible. This will mean new and different store interiors and fixtures. One thing may be depended upon; the new cabinets and fixtures will be both colorful and attractive.

* * *

Reversible Gloves. Through a news release, it has been learned that a large electrical plant used 283,000 pairs of white cotton gloves during 1945. Now this in itself may be interesting, but it is not important. However of great importance is the fact that these gloves are reversible, so they fit either the right hand or the left hand. This eliminates the problem of separating and matching fresh-

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ly laundered pairs. In this case, gloves protect electric lamp and electronic tubes from the hand moisture of assemblers.

Gloves are used in many finishing rooms to protect clean metal surfaces from hand marks of operators and handlers prior to application of primer and between succeeding coats. If you are a large user of gloves, it will pay to get the reversible kind.

* * *

Furniture. There have been some cancellations and hold-up instructions by retailers, both large and small, on orders placed at the recent furniture shows. However, this should not be taken as a cause for alarm. The underlying cause is lack of warehouse space, rather than any serious falling off of retail trade.

A spokesman for a large buying group pointed out that floor coverings, especially carpets, home appliances and some textiles are definitely

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in better supply now, and much of the warehouse space formerly available for furniture is being occupied by these items.

* * *

Plastic Floor Covering. A new hard surface floor covering has been developed which, it is said, requires no waxing or polishing. It is made of a vinylite plastic and may be had in plain or marbleized patterns. Since this material can be kept clean by mopping and requires no polishing, light colors will be as practical as darker shades. This new covering will fit in with modern offices, show rooms and laboratories.

* * *

Home Heating Devices. At the recent eighth International Heating and Ventilating Exposition at Grand Central Palace, the trend in home heating units and water heaters is definitely toward smaller, more compact, cabinet types attractively finished and certainly more efficient than the old style furnaces. These too reflect the influence of the small basement-less home, where all facilities are located in a utility room which makes some approach to beauty a requirement.

Among the new items is a convertable furnace which permits the use of either coal, gas or oil; then there is the baseboard convector which replaces conventional radiators. A source of keen interest was the heat pump machine, no larger than an ordinary refrigerator. It operates by drawing heat from tubing buried below the ground, then with the aid of Freon gas, heat is generated by compression and subsequent condensation.

Most impressive was the various streamlined cabinets finished in plain, wrinkle, and hammered finishes, grained mahogany and walnut, in colors and in white.